

7. Appendices

Appendix A: Supplemental Guidelines for Parkway Types and Subtypes

The guidelines presented in Chapter 4 apply to all parkways. This appendix supplements those guidelines with more specific ones, applicable only to one parkway type or subtype as defined in Chapter 1. They are organized here in the same order as they appear in Chapter 4.

i. Roadway Alignment

- **Internal Park Roads:** In areas where alignment results in reduced sightlines and visibility, clearly post and enforce lower speeds. If no longer needed for vehicular use, improve alignment to better serve as recreational trail.
- **Summit Roads:** Do not alter the alignment, unless safety data indicates a deficiency directly attributable to the alignment and minimal change could correct it. In cases where the alignment has already been altered, provide interpretive materials to educate visitors about the history of the Summit Road and its original configuration. Whenever possible, preserve the original route as a trail.
- **Estate Roads:** Preserve formal entrance sequences and alignment. Even if they are converted for use by pedestrians, cyclists or equestrians, continue to maintain as roadways.

ii. Vistas from the Roadway

- **Border Roads:** Selectively clear the publicly owned side to improve the woodland character and allow visual access into the parkland.
- **Summit Roads:** Provide unobtrusive overlooks with interpretive markers and parking for no more than five (5) cars.

iii. Sidewalks and Pathways

- **Pedestrian Accommodation**
 - **Internal Park Roads:** Create a sufficient number of convenient crossing points and discourage or prevent access at other locations by using native vegetation. Use signage and special warning striping or rumble strip paving at pedestrian/horseback rider crossings. Avoid any signalization. If there are no paths or sidewalks for bicyclists and/or pedestrians and there are insurmountable problems with creating such separate facilities, then at a minimum, provide shoulders of sufficient width to accommodate pedestrians

and bicyclists. Where insufficient roadway width precludes cyclists sharing the roadway with motorists and there are underused bridle trails, convert historic bridle paths into bicycle trails.

- **Border Roads:** Avoid sidewalks along the roadway. If there is a clear benefit from providing a pathway for hikers, runners or horseback riders, use an unpaved trail rather than a paved sidewalk. Maintain the appearance of the parkland edge if a separate pedestrian trail is to be installed by placing it well back from the roadway. Enhance public use of the parkland by creating and maintaining convenient points of trail access to the recreational amenities.
- **Bicycle Accommodation**
 - **Internal Park Roads:** If lacking separate parallel ways for multiple use, accommodate non-vehicular users on the roadway if conditions permit.
 - **Border Roads:** Explore creating a dedicated bike lane, but without widening the roadway. Where insufficient road width is available, create bicycle paths in the parkland. Take advantage of historic bridle paths no longer in use.
 - **Ocean Parkways:** Create a shared wider outside lane or add a dedicated bicycle lane if width allows. If shoulder width allows, assign bicycle use to the shoulder. Use multi-use pathway within parkland if space and degree of pedestrian use allow.
 - **Summit Roads:** Where the narrow width, curvilinear alignment, and constrained topography make cycling unsafe in the roadway, restrict cycling, communicated through unobtrusive appropriate signage.

iv. Shoulders

- **Internal Park Roads:** Preserve the historic configuration of shoulders, including the vegetated edge.
- **Border Roads:** Do not add shoulders unless there were shoulders historically and the addition of a shoulder would support bicycle use.
- **Summit Roads:** Preserve the historic configuration of shoulders including the vegetated edge, unless safety data supports modifying the shoulder. Discourage informal pull-offs where the shoulder is vulnerable to erosion by signage, plantings and appropriate barriers, if necessary. Avoid parking stones. To resist erosion on steep slopes, use coarse locally sourced aggregate instead of finer gravel.

- **Estate Roads:** When historically documented, preserve the shoulder as a component of the historic parkway landscape.

v. Lane Number and Width

- **Internal Park Roads:** Retain one-way loops. If a wider travel way is needed for access by lifesaving equipment or other operations, use pull-outs or minimal widening. Do not convert to two-way traffic one-way loops which follow a specific sequence of views.
- **Ocean Parkways:** Use measures to ameliorate the view-obstructing character of parking wherever possible, such as removing spaces at particularly important viewpoints and creating nearby off-road parking on the landside of the road, with carefully controlled pedestrian crossing facilities. Preserve the relationship between the travel way and the shorefront parkland. Do not widen or add lanes and create a broad “hardscape”.
- **Summit Roads:** If safety data supports changes to the width of travel lanes in these fundamentally narrow roadways, make only minimal modifications. Assure that paved swales are visually distinguishable from the paved roadway to avoid creating the illusion of a wider travel way.
- **Estate Roads:** Preserve the historical roadway width. Where serving as a recreational trail, maintain as a single lane roadway with a surface suitable for walking, running, and bicycling, thereby keeping users on the roadway and protecting adjacent land from being absorbed into the road. Realign only for an extraordinary environmental benefit such as protecting an endangered species.

vi. Pavement Markings

- **Internal Park Roads:** If distinctive single yellow centerlines were present and are considered character-defining, preserve or restore them.
- **Internal Park Roads, Summit Roads, and Estate Roads:** Where existing pavement markings are determined to be redundant or unnecessary safety measures, remove them. Where safety under certain use and low-visibility weather conditions is an issue, or where pavement width is greater than twenty feet or average daily traffic is greater than 6,000, add centerline and shoulder lines (fog lines) for lane and pavement edge delineation.

vii. Road Surface

- **Internal Park Roads and Vernacular Roads:** If warranted by historic precedent or interpretive goals, remove pavement on a parkway that no longer carries traffic and replace with historically appropriate surfacing.
- **Estate Roads:** If formal entry road, use treatment appropriate to historic design and current function. Where necessary, retain paved surfaces to support park operations and management. If possible, retain or restore unpaved entry roads to evoke the historic entry experience.

viii. Vegetation

- **Internal Park Roads, Estate Roads, and Vernacular Roads:** Use more naturalistic turf mix comprising less fine species, mowed at least one (1) inch higher than conventional turf in high use parkland areas, for a less manicured but historically correct look, or wildflower mix if to be mowed only once a year.
- **Internal Park Roads, Estate Roads, and Vernacular Roads:** Avoid disturbance during construction or maintenance of delineated wetlands, woodland vernal pools, and State-listed Rare Species and Natural Communities identified by the Massachusetts Division of Fisheries and Wildlife (DFW) Natural Heritage and Endangered Species Program (NHESP), the protection of which overrides other goals including opening vistas.
- **Border Roads:** If the side of the parkway opposite the parkland lacks regular street trees, provide them in the public right of way as a way of improving parkway character and discouraging private incompatible landscaping on the roadway shoulder.
- **Ocean Parkway:** If absent, along the landside plant salt-resistant tree species to mitigate the visual impact of adjacent development and create a visual cue that the oceanfront parkland extends across the parkway.
- **Summit Roads:** Treat the summit area that terminates the Summit Road as a historic landscape, integral to the parkway's character. Preserve historic plant materials, layout and vistas, which are vulnerable to gradual loss by plant succession. Monitor the summit area for overuse and modify the maintenance program as needed to deal with erosion, compaction, drought and other stresses on the landscape.
- **Estate Roads:** Determine if succession growth is appropriate and desirable for a specific site. Define and manage boundaries of succession growth.

ix. Curbs

- **Internal Park Roads, Summit Roads and Estate Roads:** Avoid installation of new curbing. Where deemed appropriate to resolve a stormwater or water quality control problem or to protect vegetation or stem erosion, install mountable curbing such as sloped granite whose scale, profile, and material is compatible with the landscape. When routine turning might override the road edge and degrade the roadside landscape, install vertical granite curbing.

x. Traffic Barriers

- **Internal Park Roads:** Wherever possible, preserve in place original guardrails and stone barriers using appropriate preservation techniques. If safety requires the replacement of the original, design to be compatible with the historic design including scale, materials and construction. Use all-timber systems or three-cable barrier with wooden posts. On trails and paths, for historic interpretive purposes, install guardrails which replicate the documented historic type, even if they require more maintenance.
- **Border Roads:** Avoid barrier systems, as none have existed historically.
- **Ocean Parkways:** For existing historic barrier systems, preserve with appropriate techniques if at all possible. If the barriers do not meet current safety needs, exhaust all preservation options, such as internal reinforcement, reconstruction, or addition of materials to the existing barriers before replacing with new materials. Design guardrails to be compatible with the historic barrier system. Do not obstruct water views for drivers.
- **Estate Roads:** Avoid use of guardrails and barriers. On pedestrian-only routes, do not use crash-proof barriers. Where access control or protection of users from hazardous terrain is necessary, install wood fences. If steep slopes present a hazard to park staff vehicles, install a minimal length of guardrail or other barrier whose design, scale and materials is consistent with the setting and period of historic significance.

v. Utilities

- **Internal Park Roads:** Whenever possible, locate utilities so as to be unobtrusive. Restrict clearings for utility rights-of-way or severe pruning of the tree canopy. Avoid overhead wires, poles and junction boxes as they often require clearing of the right-of-way or pruning of the tree canopy. If utility poles must lie adjacent to the roadway, use wood poles in scale with the surrounding landscape.

xii. Signage

- **Internal Park Roads:** Develop signage as part of a larger system of trail wayfinding and interpretive educational signage describing the park and archaeological history of the area, using scale, design and materials consistent throughout the facility and compatible with the historic parkway landscape.
- **Border Roads:** Install signage that identifies the parkland as part of the park system and that locates points of public access.
- **River Parkways and Ocean Parkways:** Avoid placing signage that intrudes on ocean, river or long views.
- **Estate Roads:** If closed to public motor vehicles, install interpretive signage to facilitate use as a self-guiding trail.

xiii. Lighting

- **Border Roads and Internal Park Roads:** When cobra-head lighting systems need to be replaced or lighting needs to be added, substitute more historically-appropriate or less obtrusive design alternatives. Until a superior design emerges, use the shoebox fixture mounted on wooden poles to blend in with the surrounding vegetation where a more urban style light would be incompatible.
- **Ocean Parkways:** Preserve historic lighting fixtures which survive. If necessary, retrofit the lamps with modern fixtures to achieve the intensity and range of illumination required for safety.
- **Ocean Parkways:** Take into consideration the scale, natural setting, and wind exposure of the parkway landscape. Avoid cobra-head lighting or tall poles. When cobra-head lighting systems need to be replaced, substitute more historically appropriate design alternatives.
- **Summit Roads:** Avoid adding lighting, given that the infrastructure (poles, cables, etc.) and the ambient light would have a negative impact on the character of the parkway and the nighttime view of the mountain from the surrounding viewshed.
- **Estate Roads:** Do not install lighting, as it is inappropriate, unless lighting fixtures were used in the period of historic significance, in which case match the form of the original as closely as possible.

xiv. **Bridges**

- **Connecting Parkways:** Introduce a pedestrian overpass only if the need is supported by both high traffic and pedestrian volumes and warranted by a safety evaluation and if the visual impact is acceptable, and design it to reflect the historic character of the parkway.

xv. **Intersections and Curb Cuts**

- **Ocean Parkways:** Preserve rotaries with modifications for improved pedestrian safety.

xvi. **Drainage**

- **Roadway Drainage**
 - **Internal Park Roads:** Where waterbars are utilized to channel water across an unpaved parkway lacking a crown, remove the waterbar and regrade the roadway to establish a crown.
 - **Summit Roads:** Assess the effectiveness and safety of paved swales located adjacent to the paved roadway. Assure that swales which are indiscernible from the roadway and create the illusion of a wider travelway than actually exists are clearly distinguishable, by pavement marking. If the roadway must be widened into the swale area, determine whether to make changes to the swale to insure proper drainage such as a narrower, deeper swale with underground drainage. Correct cross-slopes to assure proper cross-drainage.

Appendix B: Parkway History

The parkways of the Metropolitan Parks System were among the first American recreational roadways, and their management over the past century reflects the changing context of automobile culture and transportation design nationwide.

The metropolitan Boston parkways evolved from the work of noted landscape architect Frederick Law Olmsted who, along with Calvert Vaux, created the first scenic carriageways in Central Park in 1858. Ten years later, the partners coined the term “parkway”, as part of their 1868 designs for the Park and Parkway System of Buffalo, NY and Prospect Park in Brooklyn. Olmsted’s parkway concept came to Boston in 1887, when he proposed a system of parkways linking the Common and Public Garden to the Fens, Leverett Pond, Jamaica Pond, the Arnold Arboretum and Franklin Park in an “Emerald Necklace” of public green space that would encircle the city. This ribbon of green space, connected by parkways, heavily influenced the development of the metropolitan parks system.

Construction of the Emerald Necklace was nearing completion in 1893 when the Metropolitan Park Commission was established for the purpose of protecting open space for the public benefit of the region. For this new agency, journalist Sylvester Baxter and landscape architect Charles Eliot proposed a parkway system that has been noted as “the most notable scheme of comprehensive metropolitan park planning” in the United States.¹ As Charles Eliot wrote in 1893, “Local breathing spaces and the existence of pleasant features of natural scenery in the neighborhood are really as essential to the moral and physical health of a community as the absolutely utilitarian improvements that are usually given precedence.”² Although Eliot was himself a noted landscape architect with ties to the Olmsted firm’s Boston work, it was Baxter, the journalist, who envisioned landscaped “special Pleasure-ways” as part of the system from the start.

Since the 1870s, Baxter had argued for a regional government for Boston and towns within a ten mile radius to handle functions that “are of general public concern rather than local interest,” including water supply, sewers, transportation and public parks. The state’s creation of the Metropolitan Sewerage Board in 1887 and the founding of the Trustees of Reservations by Eliot and Baxter in 1891 set the stage and illustrated the need for establishing a regional governmental body to protect the threatened open spaces of the Boston area. Within ten years of its creation, the Metropolitan Park Commission had acquired much of the park system known today, including major woodland reservations at Blue Hills and Middlesex Fells, Revere Beach, the Upper Basin of the Charles River, Hemlock Gorge and Beaver Brook.

The Commission quickly added parkways to its vision of publicly owned reservations of significant uplands, river corridors, and beaches. The Boulevard Act of 1894 empowered the Commission to create parkways to connect the reservations to each other and to population centers in order to increase recreational access. The two earliest Connecting Parkways were the Middlesex Fells and Blue Hills Parkways, which linked Boston with the two largest Metropolitan

¹ Jon C. Teafor, *The Unheralded Triumph: City Government in America, 1870-1900* (Baltimore: Johns Hopkins University Press, 1984), 256-257.

² [citation]

Park reservations. These parkways were designed to provide a pleasing travel experience within scenic surroundings, with carriages, horseback riders and trolleys travelling on separate travelways separated by planted medians.

The first generation of metropolitan parkways provided direct access from urban areas to major reservations, defined the edges of shore reservations, or traveled along the edges of Boston's major rivers. After the Metropolitan Park Commission merged with its water and sewer counterparts to form the Metropolitan District Commission (MDC) in 1919, a second generation of parkways was created to link various parts of the regional park system. Parkway character was protected by legislation restricting parkway cross-traffic and "curb cuts" for abutters. While most parkways were restricted to recreational pleasure vehicles, some Connecting Parkway were open to general traffic, and later became part of the state highway system.

Park-ways and the state park system

Although the park roads of the broader state park system did not grow out of one regional vision, their history is closely tied to the history of outdoor recreation in Massachusetts. Long before the Commonwealth even had a park system, the early road systems of many early state parks such as Mount Greylock (1898) and Wachusett Mountain (1899) were improved to provide access to profitable summit houses and observatories at the state's higher peaks. The Department of Conservation (DOC) was created in 1919 to manage these state reservations, and by World War II had acquired 180,000 acres, all with an increasing need for improved access. Between 1933 and 1940 the Civilian Conservation Corps (CCC) transformed many nineteenth century roads into comprehensive recreational parkways. The CCC had thirty-one camps in operation, providing forty-seven state forests with roads and recreational facilities based on the rustic planning and design principles of the National Park Service.

Between 1905 and 1945 the popularity of automobile travel soared, and demand for public access to the reservations in the Boston area spurred great developments in the parkways of the Metropolitan District Commission. During this period some travelways were widened, and traffic circles and overpasses were built to accommodate the growing traffic flow. These "modern" improvements were an important phase of the parkways' historic evolution. Despite these growth spurts, however, the parkways remained a defining recreational function of the Metropolitan Park System.

After World War II, the growth of the middle class, the relocation of urban populations to the suburbs, and the expansion of the national movement toward superhighways changed the management context of the MDC parkways. Between 1949 and 1956, many Boston parkways were transferred to MDC and Route 128 was built to reroute traffic around Boston. On June 29, 1956, President Eisenhower signed the Federal Aid Highway Act, in response to overwhelming national pressure for safer and speedier highways. The Cold War-era President also felt that the newer, multi-lane highways were essential to a strong national defense. The same year, the American

Association of State Highway Officials (now AASHTO) published the first national road standards. The emphasis of highway development had shifted to safety, utility and efficiency, and away from recreational and scenic values – a trend that continued into the 1990s.

In the 1990s the federal transportation model underwent a renaissance that reintroduced beautification, natural resource enhancement, and cultural resource protections into the federal highway program. Passage of the Intermodal Surface Transportation Act (ISTEA) of 1991 and the Transportation Equity Act (TEA-21) of 1998 provided incentives for systematic integration of aesthetics and place-making and provided comprehensive planning and design opportunities for transportation facilities. In 1997 the Federal Highway Administration published *Flexibility in Highway Design*, underscoring the positive movement on the part of highway engineers to integrate historic and aesthetic considerations by stating that “this Guide has been prepared for the purpose of provoking innovative thinking for fully considering the scenic, historic, aesthetic and other cultural values, along with safety and mobility needs, of our highway transportation system.”

More recently, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) authorized the federal surface transportation programs for highways, highway safety, and transit for the 5-year period 2005-2009, emphasizing safety and flexibility of approach in design decisions.

Following the larger trends in traffic engineering and road design, the New England region took the lead in parkway preservation in the 1990s. For example, the sensitive treatment of the Merritt Parkway in Connecticut provided a compelling example for heavily used parkways everywhere (the 2006 District Court decision preventing major alterations to the parkway continues this trend). Vermont was at the forefront of context sensitive design, publishing its own Vermont State Design Standards in 1997 as an alternative to the AASHTO model, and in 2001 the Vermont Agency of Transportation published its *Study of Guardrail Selection Criteria for Vermont Highways*, driven substantially by scenic road issues.

In Massachusetts, however, the history of parkway management in the second half of the twentieth century is complicated. As the Eisenhower Interstate Highway System evolved as the primary transportation model, funding for the maintenance of the MDC parkways decreased. As a result, many of the metropolitan parkways and the roads of the Massachusetts park system fell into disrepair between 1945 and 1970. In 1959 the state legislature first considered and decided against a transfer of MDC parkways to the Department of Public Works, establishing a precedent for the doctrine articulated here that parkways should not be managed like ordinary highways.³

Although state legislature authorized open space bond bills in the 1980s that funded park and parkways improvements, maintenance funding continued to shrink. In 1991, a proposed organizational merger of the MDC and the Department of Environmental Management (DEM) recommended that parkways be managed by the Massachusetts Highway Department (MHD). This proposal has not been realized despite ten years of legislative efforts supporting the transfer of parkways to the highway department.

³ For more detailed discussion of the history of the urban parkways, see the National Register of Historic Places Multiple Property Documentation Form for the Metropolitan System of Greater Boston, prepared by Virginia H. Adams et al., 2002

In 2001, the Executive Office of Environmental Affairs (EOEA) launched the Historic Parkways Initiative to establish a framework for the preservation and management of the historic parkways under the care of the MDC and the DEM. This interagency initiative involved the DEM and MDC as well as the Massachusetts Highway Department and the Massachusetts Historical Commission (MHC). The development of these parkway treatment guidelines was one of the primary goals of the Initiative.

Despite changes in leadership in state government since 2001, the work of the Historic Parkways Initiative continued. In 2003 the Metropolitan District Commission and the Department of Environmental Management merged to form the Department of Conservation and Recreation (DCR), bringing the management of the state's parkways under one parks agency. Over the past five years, the Massachusetts Historical Commission has nominated and listed most of the parkways of the Metropolitan Parks System of Greater Boston on the National Register of Historic Places. In addition, the Massachusetts Highway Department published their new context-sensitive-design-based *Project Development and Design Guidebook* in January 2006.

The completion of these parkway treatment guidelines will be an important step into the next phase of historic parkway stewardship.

Appendix C: Threats and Issues

The Commonwealth is under constant pressure to modernize parkways. Legitimate issues like safety and increasing traffic volume are most often cited as the primary reasons for altering a parkway in the name of modernization (see Tort Liability sidebar); more often the actual culprit is the lack of information concerning the historic status of the parkway, the characteristics that support this determination, and the attainable goal of preserving parkways while ensuring that safety guidelines are followed. Consequently, collaboration between designers, engineers, planners, historic commissions, and preservationists is ultimately the best tool for preventing the degradation or loss of parkways or parkway features. Through such collaboration, stakeholders who are initially on opposing sides of the issue may find common ground on the future of historic parkways by identifying methods to preserve their historic characteristics while ensuring public safety.

A major milestone in this effort is the Massachusetts Highway Department's *Project Development and Design Guide* (2006), which promotes collaboration between design and preservation professionals in road development projects. Not only do the guidelines address issues directly associated with road features, they also place a heavy emphasis on the setting and how changes in the surrounding corridors and communities can strongly affect the character of a road. This process of addressing the larger picture when developing road projects is known as "context sensitive design" – a relatively recent strategy in municipal transportation planning, and one that takes into account the historic significance of a parkway.

The following is a selection of the major threats to the integrity of a parkway.

i. Lack of Awareness and Understanding

Engineers and preservationists often find themselves in opposition when discussing options for the alteration of a parkway. However, the root of this issue often lies in the reluctance to learn the language of the other's profession, and not in the stubbornness or ignorance (real or perceived) of the other side. It is imperative that all parties learn each other's vocabulary, which often uses the same words with different definitions, and attempt to develop a common language for their project. For example, to preservationists the terms restoration and rehabilitation (as well as preservation and reconstruction) are defined in the *Secretary of the Interior's Standards for the Treatment of Historic Properties* and are exclusively concerned with outlining the levels of treatment for historic properties. For traffic and civil engineers, the terms restoration and rehabilitation usually refer to roadway improvement projects (also known as "resurfacing, restoration, and rehabilitation" or 3R projects) which are associated solely with federally-funded projects that address pavement condition and minor road modifications. When discussing the future of a historic parkway, not being clear with vocabulary can needlessly hamper communication and affect the outcome of the project.

ii. Inappropriate Zoning and Altering the Setting

The character of the privately-owned lands along parkway boundaries contributes to its historic integrity, visual quality, and its experience as a pleasure route. The zoning, land use, and development density in the surrounding community may have drastically changed since the parkway was first built, severely impacting the surrounding setting. While commercial

development is most often cited as the primary culprit, residential subdivision and the re-zoning of abandoned agricultural lands also may alter the historic setting of a parkway.

iii. Transportation Demands

As population and traffic demands grow, the pressure to increase capacity and speed on historic parkways is greatly increased, often as the result of traffic mitigation for adjacent development. Without adequate protections in place, historic parkways may be subject to construction efforts that do not consider the parkway's place in the context of the larger community. This may result in significant changes to historic parkway character including:

Realignment

Altering the parkway's original vertical and horizontal placement on the underlying topography is often done to increase traffic flow, safety, and speed in reaction to increased population and traffic. The subsequent roadway alterations like straightening curved segments, widening curves, adding lanes, increasing superelevation, removing rotaries, or leveling steep grades all have the potential to destroy historic parkway integrity.

Widening

Adding lanes, or widening existing lanes, shoulder, or clear zones not only affects the character of the parkway itself, but also may have a significant effect on the parkway corridor as a whole, particularly median width, roadside planting and other features. Widening projects often involve a widened clear zone to meet safety requirements of increased traffic and higher design speeds.

Impacts to Trees and Stone Walls

Altering or removing trees, ledges, or stone walls during road widening, clear zone expansion, or adjacent development can significantly change these highly characteristic elements of many Massachusetts parkways.

iv. Inappropriate Treatment

Joined with the pressure to increase capacity and speed is the pressure to update those design characteristics of a parkway that are most easily lost, sometimes by adopting a highway design vocabulary that may be inappropriate for parkway design.

Resurfacing

Resurfacing raises a number of issues for historic parkways that may not be immediately apparent. Obvious changes such as converting the surface of Vernacular Roads from dirt to pavement can heavily alter historic character. However, more subtle changes in the color of asphalt, the size of the aggregate, and the additional height if accumulated if underlying layers are not removed, can have significant impacts on historic integrity.

Threats to Roadside Plantings

Trees are threatened by automobile exhaust, public utility placement, use of deicing chemicals, and other issues associated with automobile impacts. In addition, historic

planting beds and groundcovers associated with historic parkways can also be easily affected by any number of roadway alterations.

Guardrails and Guardwalls

Historic guardrails and guardwalls are often heavily altered, removed, or replaced to accommodate current design standards; a process that is one of the most prevalent and easiest mitigations to implement on a parkway, detracting from its character. The result is usually a far more intrusive style of rail or wall than is necessary to ensure public safety on a parkway.

Small-scale Features

The steady and unnoticed accretion of small-scale features can ultimately cause a historic parkway to lose integrity. The addition of inappropriate utilities, lighting, signage, parking meters, curbing, and other features without proper design and review can clutter and overwhelm a parkway with non-historic features. Examples include cobra-head light fixtures, “Jersey” barriers, boulders, and salvage granite curb lining the roadside to prevent vehicular off-road access.

v. Deferred Maintenance

Faced with declining conditions, rising maintenance costs and budgetary constraints, the Commonwealth has been unable to perform essential cyclic maintenance on many parkways. The resulting pattern of deferred maintenance and reliance on interim repairs can result in the unintentional loss of significant parkway character or even complete loss of portions of the roadway itself.

Vegetation Decline

Neglecting to prune dead branches or replace dead trees, inadequate watering, lack of soil aeration to relieve compaction, and mechanical injury to tree trunks caused by grass mowing equipment increase trees’ susceptibility to disease and have contributed to the decline of tree health along Massachusetts parkways.

Overgrowth

Trees, brush, shrubs, and grass left unattended may not only create safety issues from decreased sightlines, but also affect the physical stability of parkway features. If allowed to grow unchecked, vegetation along the parkway will grow over the clear zone and shoulders. Furthermore, vegetation will grow in joints and cracks in the pavement, curb, sidewalks and walls, breaking apart the roadway and roadside features, thereby exposing them to further water and frost damage. Allowing parkway vegetation to grow unchecked also results in the loss of informal views and designed vistas to the surrounding setting, an essential part of parkway design and experience.

Drainage Features

The swales, drains, and culverts along parkways are often neglected and quickly become clogged by overgrowth and debris. The resulting drainage problems may pose a safety hazard for passing motorists and result in the loss of historic features, or the undermining of the parkway itself through erosion.

Surface Patching

The high costs of road paving projects often result in road surface patching with inappropriate materials. Broken pavement may be filled with quick-setting concrete and asphalt mixes whose quality and color detract from the historic character of the parkway.

Appendix D: Historic Parkways Initiative

Mission of the Historic Parkways Initiative

The Historic Parkways Initiative (HPI) —a coalition of the Executive Office of Environmental Affairs (EOEA) and other public and private organizations—works to protect, preserve and enhance historic parkways throughout the Commonwealth. Through advocacy, education and action, and in the spirit of partnership, the Initiative celebrates the invaluable scenic, cultural, recreational, and transportation roles of these remarkable and diverse parkways. A catalyst for change, the Initiative is building new models of stewardship and revitalization for these treasured resources.

The goals and philosophy of the Initiative are built on the foundation established by the visionary thinking that brought about the state’s incredibly diverse system of parkways we enjoy today. That thinking is relevant for us now, as we work to preserve, strengthen and build awareness of the legacy of historic parkways in every region of the Commonwealth.

The parkways forming the former Metropolitan District Commission’s system of roads became the links and pleasure drives of America’s first regional park system of the turn of the twentieth century, created by the farsighted commitment of leaders who recognized the need for comprehensive protection of “the rock hills, the stream banks, and the bay and seashore”⁴ for present and future generations. The parkways were integral ingredients in that park system, and with the “reservations” they provided a rational response to the explosive growth of metropolitan Boston at the turn of the century. The variety of parkway types represented within the MDC system reflects a design response to physical place, circumstance and need, rather than imposition on the land of an efficient route to a destination. Whether it be Hillcrest Parkway, a Border Road that marks the boundary between Middlesex Fells and private land, Revere Beach Boulevard, an Ocean Parkway that provides beach access and dramatic ocean views, or VFW Parkway, a Connecting Parkway that extends the park experience beyond the Charles Reservation into the residential and commercial environs, each parkway type and individual road responds to the topography and natural features of its landscape to provide a pleasurable as well as practical travel experience.

The parkways that serve the forests and parks of the former Department of Environmental Management represent the combined vision of Franklin D. Roosevelt’s Civilian Conservation Corps of the 1930s and the Massachusetts legislature’s move to preserve areas of dramatic natural scenery as well as to restore the state’s depleted forest resources. The legacy of the efforts of that time—during which thousands of acres of land and valuable scenic resources were made accessible—is a system of roads and associated built structures that count as some of the most impressive examples of their kind. The parkways that serve the former DEM’s lands include the incredible design achievements of this era as well as those of previous times in the parkways of estate and vernacular sites, such as the rich network of roads at Moore State Park or Borderland State Park.

⁴ Charles Eliot, citation

The planning and design principles that created the well integrated DEM parkway system we enjoy today were based on those of the National Park Service and summarized in the Massachusetts Department of Conservation's 1934 Annual Report:

In planning for recreation, every effort is made to provide the most intensive recreation possible without changing the character of the place; for example, if any area is a typical forest possessing a wildness or a natural beauty, the problem is to make that accessible and to provide facilities and such recreational opportunities that the natural character of the forest is not changed into that of the city park.

Today these parkways are integral contributors to a community's character and quality of life. They are the front yards of residential neighborhoods and institutions, and the routes along which we can enjoy the recreational treasures of our state parks. The beautiful details and composition of their designs are too often taken for granted by the millions for whom they are essential means of travel or of recreation.

There are multiple challenges to stewardship of these irreplaceable historic resources. As commuter routes, urban parkways face the stresses of high volumes of traffic which threaten their restorative experience and pose safety challenges which have necessitated additions such as guardrail structures out of character with the historic landscape. Allees of mature trees are one of the most fundamental elements that define the urban parkway, and yet along many parkways trees are in poor condition due to urban stress combined with inadequate maintenance resources, or have been removed altogether and not replaced. The parkways that thread throughout the state's forests and parks suffer from overuse in places, inadequate resources and competition for dwindling dollars.

The perspective of historic landscape preservation has not been regularly integrated into processes of parkway improvements, with the result that engineering needs have been satisfied at times without taking advantage of opportunities to preserve or enhance a historic parkway's character-defining features. What has become clear is the need to bring multiple interests together in a collaborative effort to protect and improve the health and vitality of these incomparable open space treasures.

HPI Accomplishments

The Initiative has demonstrated a remarkable interagency partnership, with a broad spectrum of public agencies and stakeholders meeting regularly to discuss issues and shepherd the process. The product of this multi-pronged initiative is a preservation planning prototype for the treatment and management of historic parkways.

Stakeholder workshops were held in the fall and winter of 2001-2002, drawing hundreds of participants across the state in lively and constructive dialogue. Listening to the public and raising awareness of the values and threats to these historic parkways have been critically important components of the effort. This will continue to be a core element in the sustainability of the Initiative's plans, elaborated below in Public Education and Outreach Strategy.

In the fall of 2002, a daylong workshop was held at the Harvard Graduate School of Design with a delegation from Los Angeles working to protect and enhance the Arroyo Seco Parkway. Also attending was Dan Marriott of the National Trust for Historic Preservation, a nationally known advocate for historic road preservation and author of *Saving Historic Roads*. Landscape architect Grant Jones and his colleague from Jones and Jones attended to contribute insights from their innovative work on historic road preservation and collaborative process in Kentucky and Montana. The workshop found that there was a national groundswell of change and acceptance of historic road preservation—a “tipping point” for the visions and strategies embodied in the work being done within the Initiative.

The Initiative has been guided by a statewide Steering Committee representing a broad spectrum of perspectives including public agencies, public officials, non-profit and professional organizations, and community representatives. The Steering Committee and several subcommittees, as well as an interagency committee representing EOEa, DEM, MDC, the Massachusetts Historical Commission (MHC) and the Massachusetts Highway Department (MHD) have met regularly since the start of the Initiative to discuss issues and shape a process. The consultant team has met with engineers from DEM and MDC to discuss their work, needs and issues relative to their agency’s parkways, to receive specific information about their roads, and to ensure that the Guidelines will be responsive and useful to them.

Because of the complexity of parkways as historic resources, scenic travelways and transportation networks, the interagency process was critical for the Initiative. It has provided fertile ground for improved understanding across agencies and disciplines of the missions, perspectives and priorities of agencies that have not historically come together to find common ground and mutually agreeable courses of action. The working relationships that have been forged during the Initiative will provide a platform for continuing conversations and shared stewardship.

Subcommittees of the Steering Committee included a Communications Committee that focused on the message of the Initiative and the most effective way to deliver it. Members of this committee brought to the table expertise in marketing and communications as well as public education and advocacy. They worked with a marketing and communications consultant to take their ideas about the purposes and vision of the Initiative and realize them in clear and arresting text and graphics. The mission of the Initiative was initially formulated for review by the entire Steering Committee, while the Communications Committee spent several meetings delving into the Initiative’s purpose and goals to craft a mission statement for full committee review. The Communications Committee met several times to review and make recommendations to the Steering Committee for a Historic Parkway Initiative logo that captures the concept and energy of the Initiative in a typographic solution.

Another important committee was the Guidelines Subcommittee. Members of this committee brought expertise in historic preservation, landscape architecture, landscape preservation, transportation engineering, and municipal transportation design and process to work closely with the consultant team conducting the state-wide parkway assessment and formulating the Guidelines. Committee members made valuable contributions throughout the process of inventory, and served as peer reviewers of this document.

Research on National Models

Awareness of the importance of concerted action to save our threatened historic road resources has risen exponentially across the country in recent years. Conferences focused on historic road preservation, books dedicated to the subject, and friends groups have proliferated. The Initiative has benefited from this climate of attention and the expertise that has been built in the national road preservation community over the last several years. Guidelines and management plans have been collected and assessed from over a dozen states. The advice and perspective of advocates and researchers, locally and nationally, has been sought. Models and best practices from initiatives elsewhere have been culled and used as reference points for the current effort. Of particular importance has been the excellent work done by the National Park Service, documented both in proceedings from conferences, corridor management plans, and in the rehabilitation guidelines for the motor road system at Acadia National Park.

Study of the breadth of excellent work that has been done nationally revealed that the Initiative is the first attempt to define, categorize, assess and make recommendations for preservation treatment of an entire state-wide system of parkways. It has also reached beyond current assumptions and expand the definition of parkways to include the variety of roads within parks as well. It has looked critically at AASHTO's functional classification to conclude that the system does not provide adequate guidance for historic parkway resources, and has adapted that system to define functional classes that meaningfully respond to the variety of conditions posed by historic parkways.

In addition to this distinction, another factor that limited the utility of existing national models for the Massachusetts effort was that most of the existing documents focused on a single historic road, delving very specifically into the individual corridor and its historic and current context. While the preservation principles were applicable, and the processes good ones, the level of detail and specificity was more at the level of a corridor management plan for a specific parkway than guidelines for a system of parkway types. Some projects addressed parkway systems, but often did so as part of a larger plan for a park and parkway system. In these cases, recommendations for the parkway components were helpful to an extent, but were less focused and therefore less useful than an initiative solely addressing a historic road system would have been.

There are several documents that address systems, and they were important sources of guidance for the Initiative. One is the *Vermont State Standards for the Design of Transportation Construction, Reconstruction and Rehabilitation on Freeways, Roads and Streets*. While it does not treat roads from a purely historic preservation perspective, and addresses all roads from freeways to rural corridors, a central purpose of the document is the enhancement of a road's context and the mitigation of negative impacts on its important scenic, cultural and natural resources. This provided both inspiration and practical guidance in developing guidelines for treatment of Massachusetts' parkways. Another important guiding document was the Federal Highway Administration's *Flexibility in Highway Design*. The Foreword states that the document "has been prepared for the purpose of provoking innovative thinking for fully considering the scenic, historic, aesthetic, and other cultural values, along with the safety and mobility needs, of our highway transportation system." This represents a sea-change in thinking

about how roads should be treated, and was an important touchstone for the development of these guidelines.

Perhaps the Initiative's two most significant early accomplishments was leading the National Register Nomination process and launching the first two Demonstration Projects, discussed in the next two appendices.

Appendix E: National Register Nomination

Another important component of the Initiative has been the effort to secure formal recognition of the historic significance of the MDC parkway system and to heighten public awareness of this remarkable system. The Massachusetts Historical Commission funded and prepared a National Register of Historic Places Multiple Property Documentation Form for the Metropolitan Park System of Greater Boston, and National Register nominations for the parkways within the system. Extensive historical research and documentation of existing conditions supported this process, proceeding under an unusually accelerated timetable. Over 40 nominations were prepared, covering more than 60 parkways. They are listed in Appendix G.

If the parkway is not yet listed on the Register, first consult the Massachusetts Historical Commission for a determination of eligibility for listing on this official federal list of districts, sites, buildings, structures and objects significant in American history, architecture, archaeology, engineering and culture. National Register properties have significance to the prehistory or history of their community, state or nation. Properties listed on the National Register must possess historic *significance* and *integrity* (see sidebar).

In order for a property to be listed on the National Register, prepare a nomination form, which includes a detailed description of the property and an evaluation of its historic significance. With the exception of federally owned properties, nominations for properties in Massachusetts are submitted to the Massachusetts Historical Commission for evaluation. Nominations recommended for listing by the state review board are then referred to the National Park Service who administers the National Register program.

Preparation of a National Register nomination often provides the first complete record of the history,

Significance of a historic property is determined by evaluating it against four criteria laid out in the National Register:

Criterion A: Associated with historic events or activities or patterns

Criterion B: Associated with important persons

Criterion C: Distinctive physical characteristics of design, construction, or form

Criterion D: Potential to provide important information about prehistory or history

Most parkways would be eligible for listing under Criterion C, because of their subtlety of design integrating the road into the topography and natural surroundings, and the quality of their associated structures such as stone walls, bridges or box culverts. Vernacular Roads could qualify under Criterion A, their association with pre-park patterns such as the road systems of former villages or farm access roads.

Integrity, as defined by the Secretary of the Interior's *Guidelines for the Treatment of Cultural Landscapes*, is "the authenticity of a property's historic identity, evinced by the survival of physical characteristics that existed during the property's historic or prehistoric period. The seven qualities of integrity as defined by the National Register Program are location, setting, feeling, association, design, workmanship, and materials." The National Register Bulletins 16 and 16A, *How to Complete the National Register Registration Form*, are helpful resource documents for this part of the process.

significance, and current conditions of a resource, and can be a valuable asset in the Design Control Report. The findings were not only an enormous benefit to the process, they also increased public awareness and appreciation of the parkway system as one of the most significant in the nation.

A major benefit of the National Register is that listed properties are eligible to apply for state and federal preservation grant programs, and the nomination provides guidelines for a more efficient, informed and timely review process. Listing does not in itself impose restrictions on a property; it does, however, require Massachusetts Historical Commission review for all actions funded, licensed or permitted by state or federal government agencies.

Appendix F: Lessons Learned from Case Studies

Three roads within the parkway system of Mount Greylock Reservation (under the jurisdiction of DEM) and Memorial Drive (under the jurisdiction of MDC) were chosen as projects to demonstrate the objectives of the Historic Parkway Initiative. Planning for both projects has addressed a broad range of issues including preservation of existing parkway character; rehabilitation of road surface and drainage; reclamation of “lost” features; safety improvements for all users; interpretation of historical, cultural and natural features; protection of wetlands; and planning for future operations and maintenance. The application of an integrated planning approach built a base of knowledge that informed these projects, and serves as a model for public participation and permitting. These Guidelines have incorporated lessons learned from both demonstration projects.

i. Memorial Drive

One of those lessons, drawn from the Memorial Drive team’s experience, was to be bold, take chances, and not assume that something desirable yet far-reaching cannot be achieved. Plans for a rehabilitated Memorial Drive included the bold ideas of eliminating one eastbound travel lane and an additional lane of waterside parking. This was accomplished in Phase One. Rather than assume that the parking was a necessary given, proponents for the project approached MIT and learned that most of those who used the parking spaces were commuters. Assessment of traffic volumes supported the goals of reducing road width and reclaiming parkland to serve the enormous number of people who walk, run, bike and roller blade along the river, as well as to expand desirable green space, more than offsetting the modest loss of parkland by adding left-turn pockets at several locations along the central median. Phase Two will implement improvements within the parkland focusing on accommodating multi-modal use. Specific lessons learned include the following:

- **Parkway and Traffic Design Criteria**
 - Reduce lanes for enhancing adjacent park recreational experience and traffic calming.
 - Reduce lane widths (to 10 feet) even when reducing the overall number of lanes.
 - Maintain minimum horizontal sight distance (sight lines) for safety
 - Improve safety for motorists and other users by designing a safe merging area.
- **Stormwater Management**
 - Design water quality structures at outfall locations that do not change the existing landscape character.
 - Install unobtrusive of modern pump controls to safeguard against flooding at underpasses.
- **Pathways**
 - Use stabilized soil pathway surfacing to help keep runners off planted areas.
 - Provide separate paths (cyclists and roller bladers on the multi-use path and runners/joggers/walkers on the soil path
 - Widen walkways that experience heavy bicycle traffic where a separate multi-use path is currently cost prohibitive
- **Vegetation**
 - Remove species not originally planned as part of the historic planting plan
 - Prefer native species over non-native or invasive.
- **Bridges**

- Research the original construction staging techniques in planning the restoration work.
- Select railing to match the historic context, while improving pedestrian and motorist safety.
- **Lighting**
 - Consider glare minimization in selection of lighting fixtures, such as cut-off fixtures.

ii. Mount Greylock

A lesson learned from the experience at Mount Greylock was the importance of resource assessment, particularly when the parkway environment is a sensitive one such as Greylock's, home to endangered species of plants and animals in what is essentially an ecological island. Another lesson was the importance of having the work of the landscape historian commence at the beginning of a project, in order to maximize interaction between the findings of history and assessment of the site. Preservation of rare and endangered species was paramount, as was the that of the CCC-era drainage system based on a naturalistic approach to drainage using local rock to construct box culverts. Steel-backed timber guard rails were proposed to replace the failed concrete bollards installed in the 1970s.

In both demonstration projects, it was clear that the discipline of landscape architecture was central to the development of a context sensitive parkway design solution, based on the landscape architect's capacity to define, understand and integrate the varying perspectives and resources necessary in the development of a plan for parkway rehabilitation.

iii. Quincy Shore Drive or other beach project [in or out?]

In summary, the lessons learned include:

- Undertake the project in a spirit of collaboration
- Understand the resource
- Keep in mind hidden features
- Plan for regulatory review
- Involve the public
- Build on existing resources

As above, parkways are for people: they are fundamentally recreational landscapes.

Appendix G: Table of Parkways on the National Register of Historic Places

For reasons of document clarity this table has been inserted at the end of this file, following Appendix O.

Appendix H: Public Process

Appendix I: Table of Cross Reference with Federal Highway Administration *Flexibility in Highway Design* (1997) and MassHighway *Project Development and Design Guide* (2006)

Historic Parkways Initiative <i>Historic Parkways Treatment Guidelines</i>	Federal Highway Administration <i>Flexibility in Highway Design</i> (1997)	MassHighway <i>Project Development and Design Guide</i> (2006)
1. Introduction		Chapter 1
2. Parkway Planning and Project Management	Chapters 1-4	Chapters 2, 3 and 18
3. Guidelines		
Alignment	Chapter 5	Chapter 4
Roadway Cross Section Elements	Chapter 6	Chapters 5, 9, 11, 13 and 16
Bridges	Chapter 7	Chapter 10
Intersections	Chapter 8	Chapter 6
Drainage		Chapter 8
4. Maintenance		

Appendix J: List of Common Regulatory Thresholds

FILING/PERMIT APPLICATION	COMMON REGULATORY THRESHOLDS
ANRAD	Required when seeking approval of BVW boundary lines prior to proposing work or designing a project.
CG Permit	Required for work in commercially navigable (includes historic usage) or tidal waterways where there is a change in the hydraulic opening of the bridge. STURAA Approval may be granted to coastal bridge projects with federal funds allocated towards construction where the navigational opening remains unchanged and where vessels 21 feet or greater do not pass under the bridge.
CH 91 License	Bridge projects subject to the Footprint Bridge Exemption are exempt from CH 91. Maintenance projects are exempt from CH 91. CH 91 applies to all waterways including Great Ponds (10 or more acres in size), the Connecticut River, sections of the Westfield River, non-tidal portions of the Merrimack River and any non-tidal river or stream on which public funds have been expended for stream clearance, channel improvement, or any form of flood control or prevention work, either upstream or downstream within the river basin, except for any portion of any such river or stream which is not normally navigable during any season by any vessel including a canoe etc. and work in all filled tidelands except landlocked tidelands and all filled lands lying below the natural high water mark of Great Ponds. Activities requiring a license include any construction, placement, excavation, addition, improvement, replacement, reconstruction, demolition or removal of any fill or structures, not previously authorized.
CH 91 Permit	Activities requiring a permit include beach nourishment and dredging within jurisdictional areas. Lowering the water level of a Great Pond.
ENF	Widening 4 feet or more for a half mile or more. Cutting 5 or more mature living public shade trees (not trees within State Highway Layout) 14" or more in diameter @ breast height. Altering bank or terrain 10 ft or more from the edge of pavement for 1/2 mile or more except for the installation of structures such as sidewalks, drainage systems, etc. Work in an ACEC. Altering 5,000 sf or more of BVW. Eliminating 300 linear feet of stone wall. Provided that a permit is required in accordance w/MGL c 21D, new capacity or expansion in capacity for the storage, recycling, treatment or disposal of hazardous waste. Creation of 5 or more acres of impervious area. Direct alteration of 25 or more acres of land. Conversion of land in active agricultural use to nonagricultural use. Conversion of land held for natural resources purposes in accordance with Article 97. Construction of 300 or more new parking spaces at a single location.
EIR	Constructing a new road 2 or more miles in length. Widening an existing road by 1 or more travel lanes for 2 or more miles. New interchange on a completed limited access highway. Requiring a variance from the WPA. Altering 1 or more acres of Salt Marsh or BVW. Altering 10 or more acres of other wetlands. Altering 50 or more acres of land. Creating 10 or more acres of impervious area.
MCZM Concurrence	Work in water within the coastal zone when at least a PGP II or a Coast Guard Permit is required. Also will require concurrence when MEPA thresholds are triggered.

NOI	Under the WPA, required when proposing direct activity in or impact to resource areas subject to protection, including BVW, LUW, Bank, RFA, BLSF, ILSF, etc. The NOI is a 1 page form which the contractor must complete and file with EPA at least 48 hours prior to the start of construction.
NPDES	The National Pollution Discharge and Elimination Systems Program is administered by EPA and requires the filing of an NOI and the preparation of a SWPPP for projects involving construction projects with 1 or more acres of earth disturbance.
PGP I	Under 5,000 s.f. of cumulative impacts to Waters of the U.S. Instream work limited to July 1 to October 1. Maintenance dredging less than 1,000 c.y. not in a Special Aquatic Site. No impacts to Special Aquatic Sites or Essential Fish Habitat.
PGP II	Over 5,000 s.f. but under 1 acre of cumulative impacts to Waters of the U.S. Maintenance dredging greater than 1,000 c.y. but less than 25,000 c.y. not in a Special Aquatic Site. Work within the confines of a Wild and Scenic River. Temporary fill and excavation up to 1 acre in Special Aquatic Sites including salt marsh. Work in Essential Fish Habitat.
Individual ACOE Permit	Over 1 acre of impacts to Waters of the U.S. Maintenance dredge over 25,000 c.y. or any amount in a Special Aquatic Site. Permanent fill or excavation (any amount) in Special Aquatic Sites such as salt marsh, mudflats, pools and riffles, and vegetated shallows.
Programmatic 4(f)	Programmatic 4(f) Evaluations & Approvals for FHWA Projects that Necessitate the Use of an Historic Bridge. <i>Note: NFA NR Eligible historic bridge projects requiring a CG Permit will need an Individual 4(f) Evaluation and Approval.</i>
RDA	Required when work/activity will occur within 100 feet from the edge of BVW, LUW, Bank etc. or sometimes within Riverfront Area especially 100-200 feet from a perennial stream or river.
SWPPP	As of March 1, 2003, any construction project resulting in earth disturbance of 1 or more acres must file a NOI and a SWPPP concurrently with EPA in accordance with the NPDES requirements. The SWPPP is generally a list of best management practices to be used during construction in order to control erosion and sediment transport.
WQC	If under 5,000 s.f. of cumulative impacts, WQC is considered automatic with the issuance of an OOC. Over 5,000 s.f. of cumulative impacts. Over 100 c.y. of dredging. Any impacts associated with Bridge Projects that are exempt from the WPA. Work within an ORW. Any work requiring an Individual ACOE permit.
WQC SF	Expedited 42 day DEP review and permit issuance on Footprint Bridge projects may be sought provided certain criteria are met and provided DEP agrees to the expedited review.
Variance from the WPA	Non Limited projects with over 5,000 s.f. of impacts to BVW. Direct impacts to salt marsh or work within 100 feet of a salt marsh that will directly impact the salt marsh.

Appendix K: Standards for Preservation and Rehabilitation

from *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*, (Washington, D.C.: U. S. Department of Interior, National Park Service, Cultural Resource Stewardship and Partnerships, Heritage Preservation Services, Historic Landscape Initiative, 1996), pages 18-19 and 48-49.

Standards for Preservation

***Preservation** is defined as the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of technical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project.*

Standards

1. A property will be used as it was historically, or be given a new use that maximizes the retention of distinctive materials, features, spaces, and spatial relationships. Where a treatment and use have not been identified, a property will be protected and, if necessary, stabilized until additional work may be undertaken.
2. The historic character of a property will be retained and preserved. The placement of intact or repairable historic materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.
3. Each property will be recognized as a physical record of its time, place, and use. Work needed to stabilize, consolidate, and conserve existing historic materials and features will be physically and visually compatible, identifiable upon close inspection, and properly documented for future research.
4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.
6. The existing condition of historic features will be evaluated to determine the appropriate level of intervention needed. Where the severity of deterioration requires repair or limited replacement of a distinctive feature, the new material will match the old in composition, design, color, and texture.
7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.

Standards for Rehabilitation

Rehabilitation is defined as the act or process of returning a property to a state of utility and of making possible a compatible use for a property through repair, alterations, and additions which makes possible an efficient contemporary use while preserving those portions or features which convey its historical, cultural, or architectural values.

Standards

1. A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.
2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.
3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.
4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.
6. Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.
7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.
9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work will be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.
10. New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

Appendix L: Massachusetts Prohibited Plant List

****Effective January 1, 2006:** The importation of the plants listed below are banned by the listed [importation ban] date. The one and three year propagation ban phase--outdates listed - are allowed only on plants that have entered the state *prior to the listed importation ban date* and remain in the channels of trade within the Commonwealth.

NOTE: After the listed 'propagation ban' date; the sale, trade, purchase, distribution and related activities for that plant are prohibited.

Latin	Common	Importation Ban	Propagation Ban
Acer platanoides	Norway maple	July 1, 2006	January 1, 2009
Acer pseudoplatanus	Sycamore maple	July 1, 2006	January 1, 2009
Aeginetia		January 1, 2006	January 1, 2006
Aegopodium podagraria	Bishop's goutweed; bishop's weed; goutweed	July 1, 2006	January 1, 2009
Ageratina adenophora	Crofton weed	January 1, 2006	January 1, 2006
Ailanthus altissima	Tree of Heaven	January 1, 2006	January 1, 2006
Alectra Thunb.		January 1, 2006	January 1, 2006
Alliaria petiolata	Garlic mustard	January 1, 2006	January 1, 2006
Alternanthera sessilis	Sessile joyweed	January 1, 2006	January 1, 2006
Ampelopsis brevipedunculata	Porcelain-berry; Amur peppervine	January 1, 2006	January 1, 2006
Anthriscus sylvestris	Wild chervil	January 1, 2006	January 1, 2006
Arthraxon hispidus	Hairy joint grass; jointhead; small carpetgrass	January 1, 2006	January 1, 2006
Asphodelus fistulosus	Onion weed	January 1, 2006	January 1, 2006
Avena sterilis	Animated oat	January 1, 2006	January 1, 2006
Azolla pinnata	Mosquito fern	January 1, 2006	January 1, 2006
Berberis thunbergii	Japanese Barberry	July 1, 2006	January 1, 2009
Berberis vulgaris	Common barberry; European barberry	January 1, 2006	January 1, 2006
Cabomba caroliniana	Carolina Fanwort; fanwort	January 1, 2006	January 1, 2006
Cardamine impatiens	Bushy rock-cress; narrowleaf bittercress	January 1, 2006	January 1, 2006
Carex kobomugi	Japanese sedge; Asiatic sand sedge	January 1, 2006	January 1, 2006
Carthamus oxyacantha Bieb.	Wild safflower	January 1, 2006	January 1, 2006
Caulerpa taxifolia		January 1, 2006	January 1, 2006
Celastrus orbiculatus	Oriental bittersweet; Asian or Asiatic bittersweet	January 1, 2006	January 1, 2006
Centaurea biebersteinii	Spotted knapweed	January 1, 2006	January 1, 2006
Chrysopogon aciculatus	Pilipiliula	January 1, 2006	January 1, 2006
Commelina benghalensis	Benghal dayflower	January 1, 2006	January 1, 2006
Crupina vulgaris	Common crupina	January 1, 2006	January 1, 2006
Cuscuta	Dodder	January 1, 2006	January 1, 2006
Cynanchum louiseae	Black Swallow-wort; Louise's swallow-wart; Autumn olive	January 1, 2006	January 1, 2006
Cynanchum rossicum	European swallow-wort; pale	January 1, 2006	January 1, 2006
Digitaria abyssinica		January 1, 2006	January 1, 2006

Digitaria scalarum	African couch grass	January 1, 2006	January 1, 2006
Digitaria velutina	Velvet fingergrass	January 1, 2006	January 1, 2006
Drymaria arenarioides	Alfombrilla	January 1, 2006	January 1, 2006
Egeria densa	Brazilian waterweed; Brazilian elodea	January 1, 2006	January 1, 2006
Eichhornia azurea	Anchored waterhyacinth	January 1, 2006	January 1, 2006
Elaeagnus umbellata	Autumn Olive	January 1, 2006	January 1, 2006
Emex australis	Three-cornered jack	January 1, 2006	January 1, 2006
Emex spinosa	Devil's thorn	January 1, 2006	January 1, 2006
Epilobium hirsutum	Hairy willow-herb; Codlins and Cream	January 1, 2006	January 1, 2006
Euonymus alatus	Winged euonymus; Burning Bush	July 1, 2006	January 1, 2009
Euphorbia esula	Leafy Spurge; Wolf's Milk	January 1, 2006	January 1, 2006
Euphorbia cyparissias	Cypress spurge	January 1, 2006	January 1, 2006
Festuca filiformis	Hair fescue; fineleaf sheep fescue	January 1, 2006	January 1, 2006
Frangula alnus	European buckthorn; glossy buckthorn	January 1, 2006	January 1, 2006
Galega officinalis	Goatsrue	January 1, 2006	January 1, 2006
Glaucium flavum	Sea or horned poppy; yellow horn poppy	January 1, 2006	January 1, 2006
Glyceria maxima	Tall mannagrass; reed mannagrass	January 1, 2006	January 1, 2006
Heracleum mantegazzianum	Giant hogweed	January 1, 2006	January 1, 2006
Hesperis matronalis	Dames Rocket	January 1, 2006	January 1, 2006
Homeria	Cape tulip	January 1, 2006	January 1, 2006
Humulus japonicus	Japanese hops	January 1, 2006	January 1, 2006
Hydrilla verticillata	Hydrilla; water-thyme; Florida elodea	January 1, 2006	January 1, 2006
Hygrophila polysperma	Miramar weed	January 1, 2006	January 1, 2006
Imperata brasiliensis	Brazilian satintail	January 1, 2006	January 1, 2006
Ipomoea aquatica Forsk.	Chinese waterspinach	*Permit required - contact Department *January 1, 2006	*Permit required - contact Department *January 1, 2006
Iris pseudacorus	Yellow Iris	July 1, 2006	January 1, 2007
Ischaemum rugosum	Murain-grass	January 1, 2006	January 1, 2006
Lagarosiphon major	Oxygen weed	January 1, 2006	January 1, 2006
Lepidium latifolium	Broad-leafed pepperweed; tall pepperweed	January 1, 2006	January 1, 2006
Leptochloa chinensis	Asian sprangletop	January 1, 2006	January 1, 2006
Ligustrum obtusifolium	Border privet	January 1, 2006	January 1, 2006
Limnophila sessiliflora	Ambulia	January 1, 2006	January 1, 2006
Lonicera japonica	Japanese honeysuckle	July 1, 2006	January 1, 2009
Lonicera maackii	Amur honeysuckle	July 1, 2006	January 1, 2009
Lonicera morrowii	Morrow's honeysuckle	July 1, 2006	January 1, 2009
Lonicera tatarica	Tatarian honeysuckle	July 1, 2006	January 1, 2009
Lonicera x bella [<i>morrowii</i> x <i>tatarica</i>]	Bell's honeysuckle	July 1, 2006	January 1, 2009
Lycium ferrocissimum	African boxthorn	January 1, 2006	January 1, 2006
Lysimachia nummularia	Creeping jenny; moneywort	July 1, 2006	January 1, 2009

<i>Lythrum salicaria</i>	Purple loosestrife	January 1, 2006	January 1, 2006
<i>Melaleuca quinquenervia</i>	Melaleuca	January 1, 2006	January 1, 2006
<i>Melastoma malabathricum</i>		January 1, 2006	January 1, 2006
<i>Microstegium vimineum</i>	Japanese stilt grass; Nepalese browntop	January 1, 2006	January 1, 2006
<i>Mikania cordata</i>	Mile-a-minute	January 1, 2006	January 1, 2006
<i>Mikania micrantha</i>	Mile-a-minute	January 1, 2006	January 1, 2006
<i>Mimosa diplotricha</i>		January 1, 2006	January 1, 2006
<i>Mimosa invisa</i>	Giant sensitive plant	January 1, 2006	January 1, 2006
<i>Mimosa pigra</i> L.	Catclaw mimosa	January 1, 2006	January 1, 2006
<i>Miscanthus sacchariflorus</i>	Plume grass; Amur silvergrass	July 1, 2006	January 1, 2007
<i>Monochoria hastata</i>	Monochoria	January 1, 2006	January 1, 2006
<i>Monochoria vaginalis</i>	Pickrel weed	January 1, 2006	January 1, 2006
<i>Myosotis scorpioides</i>	Forget-me-not	July 1, 2006	January 1, 2007
<i>Myriophyllum aquaticum</i>	Parrot-feather; water-feather; Brazilian water-milfoil	January 1, 2006	January 1, 2006
<i>Myriophyllum heterophyllum</i>	Variable water-milfoil; Two-leaved water-milfoil	January 1, 2006	January 1, 2006
<i>Myriophyllum spicatum</i>	Eurasian or European water-milfoil; Spike water-milfoil	January 1, 2006	January 1, 2006
<i>Najas minor</i>	Brittle water-nymph; lesser naiad	January 1, 2006	January 1, 2006
<i>Nassella trichotoma</i>	Serrated tussock	January 1, 2006	January 1, 2006
<i>Nymphoides peltata</i>	Yellow floating heart	January 1, 2006	January 1, 2006
<i>Opuntia aurantiaca</i>	Jointed prickly pear	January 1, 2006	January 1, 2006
<i>Orobanche</i> L.	Broomrape	January 1, 2006	January 1, 2006
<i>Oryza longistaminata</i>	Red rice	January 1, 2006	January 1, 2006
<i>Oryza punctata</i>	Red rice	January 1, 2006	January 1, 2006
<i>Oryza rufipogon</i> Griffiths	Red rice	January 1, 2006	January 1, 2006
<i>Ottelia alismoides</i>	Duck-lettuce	January 1, 2006	January 1, 2006
<i>Paspalum scrobiculatum</i>	Kodo-millet	January 1, 2006	January 1, 2006
<i>Pennisetum clandestinum</i>	Kikuyugrass	January 1, 2006	January 1, 2006
<i>Pennisetum macrourum</i> Trin.	African feathergrass	January 1, 2006	January 1, 2006
<i>Pennisetum pedicellatum</i> Trin.	Kyasuma-grass	January 1, 2006	January 1, 2006
<i>Pennisetum polystachyon</i>	Missiongrass	January 1, 2006	January 1, 2006
<i>Phalaris arundinacea</i>	Reed canary-grass	January 1, 2006	January 1, 2006
<i>Phellodendron amurense</i>	Amur cork-tree	January 1, 2006	January 1, 2006
<i>Phragmites australis</i>	Common reed	January 1, 2006	January 1, 2006
<i>Polygonum cuspidatum</i>	Japanese knotweed; Japanese arrowroot	January 1, 2006	January 1, 2006
<i>Polygonum perfoliatum</i>	Mile-a-minute vine or weed; Asiatic Tearthumb	January 1, 2006	January 1, 2006
<i>Potamogeton crispus</i>	Crisped pondweed; curly pondweed	January 1, 2006	January 1, 2006
<i>Prosopis pallida</i>	Kiawe	January 1, 2006	January 1, 2006
<i>Prosopis reptans</i>	Tornillo	January 1, 2006	January 1, 2006
<i>Prosopis strombulifera</i>	Argentine screwbean	January 1, 2006	January 1, 2006
<i>Prosopis velutina</i>		January 1, 2006	January 1, 2006
<i>Pueraria montana</i>	Kudzu; Japanese arrowroot	January 1, 2006	January 1, 2006

Ranunculus ficaria	Lesser celandine; fig buttercup	January 1, 2006	January 1, 2006
Ranunculus repens	Creeping buttercup	January 1, 2006	January 1, 2006
Rhamnus cathartica	Common buckthorn	January 1, 2006	January 1, 2006
Robinia pseudoacacia	Black locust	January 1, 2006	January 1, 2006
Rorippa amphibia	Water yellowcress; great yellowcress	January 1, 2006	January 1, 2006
Rosa multiflora	Multiflora rose	January 1, 2006	January 1, 2006
Rottboellia cochinchinensis	Itchgrass	January 1, 2006	January 1, 2006
Rubus fruticosus	Wild blackberry complex	January 1, 2006	January 1, 2006
Rubus moluccanus	Wild blackberry	January 1, 2006	January 1, 2006
Rubus phoenicolasius	Wineberry; Japanese wineberry; wine raspberry	January 1, 2006	January 1, 2006
Saccharum spontaneum	Wild sugarcane	January 1, 2006	January 1, 2006
Sagittaria sagittifolia	Arrowhead	January 1, 2006	January 1, 2006
Salsola vermiculata	Wormleaf salsola	January 1, 2006	January 1, 2006
Salvinia auriculata	Giant salvinia	January 1, 2006	January 1, 2006
Salvinia biloba	Giant salvinia	January 1, 2006	January 1, 2006
Salvinia herzogii de la Sota	Giant salvinia	January 1, 2006	January 1, 2006
Salvinia molesta	Giant salvinia	January 1, 2006	January 1, 2006
Senecio jacobaea	Tansy ragwort; stinking Willie	January 1, 2006	January 1, 2006
Setaria pallidifusca	Cattail grass	January 1, 2006	January 1, 2006
Setaria pumila		January 1, 2006	January 1, 2006
Solanum tampicense	Wetland nightshade	January 1, 2006	January 1, 2006
Solanum torvum	Turkeyberry	January 1, 2006	January 1, 2006
Solanum viarum	Tropical soda apple	January 1, 2006	January 1, 2006
Sparganium erectum	Exotic bur-reed	January 1, 2006	January 1, 2006
Spermacoce alata	Borreria	January 1, 2006	January 1, 2006
Striga Lour.	Witchweed	January 1, 2006	January 1, 2006
Trapa natans	Water-chestnut	January 1, 2006	January 1, 2006
Tridax procumbens	Coat buttons	January 1, 2006	January 1, 2006
Tussilago farfara	Coltsfoot	January 1, 2006	January 1, 2006
Urochloa panicoides	Liverseed grass	January 1, 2006	January 1, 2006

Appendix M: HPI Sample Project Scope of Work

Please note: The following is a composite scope of work based on the demonstration projects developed through the Historic Parkways Initiative. It is intended to be representative of the range of research, planning and design that may be needed on a typical historic parkway project. But it is important to note that the scope does not apply to all projects. The scope of work for a parkway project should be determined based on project goals and the specific resource.

SCOPE OF WORK

CONSULTANT SERVICES FOR THE REHABILITATION OF THE [insert name of parkway]

I. INTRODUCTION

A. Background

The historic [insert name of parkway] is located in [insert town name], Massachusetts and stretches for 4 miles along the [insert river name] River. The Parkway and surrounding Reservation are a part of the DCR parkways network and are listed on the National Register of Historic Places. The Reservation lands are also home to a number of significance flora and fauna, protected under the Natural Heritage and Endangered Species Program. It is the intent of this project to maintain the overall character of the roadway and avoid impacts to rare species while implementing safety improvements.

The Historic Parkways Initiative

In 2001 the Executive Office of Environmental Affairs (EOEA) began the Historic Parkways Initiative - a program to recognize and protect historic roads, parkways and their associated features as significant scenic and cultural landscapes under EOEA's care. This project must be consistent with the preservation protocols of the HPI and the DCR Historic Parkways Treatment Guidelines.

B. Purpose/Objective

The Massachusetts Department of Conservation and Recreation(DCR) is seeking professional consulting services for preliminary and final roadway design, natural and cultural resource assessment, permitting, and designer services during construction, for improvements relative to [insert name of parkway] in the town of [insert town name], MA. The Consultant shall assess the historic roadway and its associated landscape and develop recommendations for rehabilitation and reconstruction that are appropriate to the historic character and natural features of the resource. The consultant will develop detailed construction plans, assist with bidding and provide construction oversight of the [insert name of parkway].

The proposed [insert name of parkway] improvement program includes preservation, rehabilitation, and/or reconstruction of the following components within the context of the historic landscape:

- Pavement
- Drainage Structures (culverts, headwalls and inlets, sub-drains, paved and rip-rap drainage channels)
- Roadway side-slopes and retaining walls
- Bollards and guard rails.
- Vista Restoration

The [insert name of parkway] project is intended to be designed and bid as a single construction contract for the entire 4-mile roadway system.

If the project will be phased:

The [insert name of parkway] project may be implemented in phases as follow:

Phase I – Scope/project limits and schedule

Phase II – Scope/project limits and schedule

Work in Phase 1 will consist primarily of demolition, civil and structural work in the first segment. Work for Phase 2 will consist of final landscape work for the entire project area as well as civil work in the second segment. Plans and Specifications will be prepared for two independently biddable construction phases. Conceptual planning for Phase 2 shall begin with the initiation of the contract and following completion of Task 1. Although unanticipated, if budget considerations appear to result in a substantial delay in the bidding of Phase 2, the final landscape work for the first segment should be in a format able to stand alone for bidding as an intermediate phase. Cost estimates for Phase 1 should insure that funds for this landscaping work are reserved either for application to Phase 2 or as Phase 1A.

DCR has established a construction budget in the amount of \$10,000,000 for this project.

All work and proposed design shall be consistent with the recommendations of the [insert name of reservation] Master Plan, the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Cultural Landscapes* and the *DCR Historic Parkway Treatment Guidelines*.

II. GENERAL

A. DCR Personnel

Staff of the Department of Conservation and Recreation's (DCR) Division of Planning and Engineering are the primary contacts for all work performed under this contract.

B. Consultant Team Composition

The consultant team shall include all necessary professional disciplines necessary for the successful completion of all project elements including, but not limited to civil engineers, historical/cultural landscape specialists, bridge engineers, transportation planner or engineer knowledgeable about bicycle requirements, landscape architects, arborists, ecologists, botanists and environmental permit specialists.

C. Reduction of Non-Point Source Pollution & Adoption of Best Management Practices

The DCR is committed to the reduction of non-point source pollution through the adoption and implementation of Best Management Practices. Project designs should include BMP features designed to eliminate or attenuate pollution from storm water run-off and other sources; construction plans should incorporate BMPs to eliminate or minimize pollution from erosion and construction related run-off.

D. Reporting Formats

All deliverables submitted to the DCR shall be in hard copy and include two copies in digital format. The DCR IT Department shall specify the computer format for the individual pieces of information (i.e., reports, plans, maps, or details). The standard software used by the Division is Access, Excel, and ArcInfo (E00 exchange format), EDSC AutoCAD, Microsoft Word 2002. ASCII files should be in comma-delimited format with character strings in quotes.

E. Locus for Project Work

The locus for project work is the **[insert name of parkway]** section of the historic **[insert name of reservation]** and includes all roadways, pathways, open space and parklands, landscaping and plantings with the jurisdiction of the DCR from the northern terminus of the **[insert name of parkway]** at First Street to the southern terminus at Main Street, inclusive of the University Rotary.

III. SCOPE OF WORK

A. Orientation

The Consultant shall review and become familiar with available materials related to the engineering, history and design of **[insert name of parkway]**, as well as current manuals on historic parkway treatment, project design and development including:

1. **[insert name of reservation]** base survey maps
2. **[insert name of reservation]** Master Plan (or Resource Management Plan)
3. **[insert name of parkway]** Scenic Byway Corridor Management Plan
4. National Register nomination for **[insert name of parkway]**
5. Massachusetts Historical Commission (MHC) Inventory Forms for **[insert name of reservation]**
6. DCR's *Historic Parkway Treatment Guidelines*;
7. *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Cultural Landscapes*
8. Mass Highway Department *Project Development and Design Guide*(2006)
9. *Flexibility in Highway Design* (FHWA-PD-97-062).
10. DFW/NHESP Maps Pertaining to Locations and Extent of Rare Species

The Consultant will have access to the DCR Plans Library and Archives, by appointment with the respective archivists.

B. Documentation

The consultant shall prepare baseline documentation of the **[insert name of parkway]** as described below:

1. Site Survey

The Consultant shall conduct field surveys and prepare base plans as necessary for conceptual plans and final designs including bathymetry and geotechnical borings, as required. All surveys shall be referenced to the State Plan Coordinate System and supplied to the DCR in a digital format in addition to plan form. Plans should include, at minimum, relevant elevations, the locations of all site drainage, utilities, surface and subsurface natural (including wetland resource areas in accordance with 310 CMR 10) and artificial features. Survey plans should be in forty-foot scale with one-foot contours. Datum reference is the Boston City Base. Construction plans shall include horizontal controls.

2. Mapping and Data Collection

In addition to traditional survey, the **[insert name of parkway]** project requires collection of geographical data on specific features including:

- Locations and identification of all trees over 6" dbh
- Locations and materials of trails and pathways
- Locations of light posts

Geographic data shall be assembled in an Excel compatible spreadsheet and tied into a base map. The consultant shall work with DCR's GIS Director to insure consistency among data.

C. Design Control Report (Inventory and Analysis)

1. The consultant shall document and assess the **[insert name of parkway]** including inventory and analysis of historic and character-defining features and elements and intrusive elements. The report shall also include an assessment of the historical integrity of individual features and the overall resource area.
2. The consultant shall prepare a graphic and written inventory and report of the existing conditions at the project site, as necessary to augment, but not duplicate, the **[insert name of reservation] Master Plan**. The report shall include any additional required detailed description and analysis of site elements including facilities, circulation and parking, utilities (including DCR and municipal facilities) site furnishings, structures (including shore protection), environmental, wetland and water quality issues. The report shall include an analysis of the opportunities and constraints of the site.
3. The consultant shall make recommendations for the rehabilitation of the parkway in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Cultural Landscapes*;
4. The consultant shall prepare illustrative sections and other drawings as needed to supplement the narrative assessment;
5. The consultant shall prepare maintenance guidelines for the roadway in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*;
6. The consultant shall perform an assessment of natural resources along the **[insert name of parkway]**. The assessment shall locate and define the extent of rare and endangered species that may be impacted by this road improvement project. The consultant shall prepare guidelines for species protection prior to, during, and after construction.
7. The consultant shall prepare a draft and final **Design Control Report** based on the following preliminary outline:

A. Parkway Context

1. Area Type
 - a. Cultural Landscape Assessment
 - i Historical Overview
 - Background
 - Period of significance
 - Historical designations
 - ii Parkway segments (if needed)
 - iii Existing Conditions
 - Roadway
 - Parking and pullouts
 - Intersections
 - Crosswalks and trail crossings
 - Lane configuration and widths
 - Shoulder

- Curbing
 - Medians
 - Guard rails
 - Surface
 - Structures (bridges, viaducts, overlooks, drainage, headwalls)
 - Lighting
 - Signage
 - Landscape
 - Topography
 - Vegetation
 - Soils
 - Views and vistas
 - Sidewalks and paths
 - Site furnishings
 - Site fencing/railings
 - Major Alterations
 - iv Character-Defining Features
 - v Parkway preservation treatment recommendation
- b. Natural Resource Inventory
- i Existing conditions
 - ii Protected species and habitat
 - iii Natural resource recommendations
- c. Regulatory parameters
- i Natural Heritage and Endangered Species Program
 - ii Wetlands Protection Act
 - iii Massachusetts Historical Commission
 - iv Contacts and schedules for regulatory filings
2. Parkway Type
- a. DCR Parkway type
 - b. Comparable classification
 - c. Role in regional transportation network
 - d. Recommendations for design control
3. Access Control
- a. Existing
 - i Restricted vs. unrestricted traffic
 - ii Median
 - iii Curb cuts
 - b. Recommended access control

B. Roadway Users

- 1. Pedestrians
- 2. Cyclists
- 3. Adjacent recreational sites
- 4. Recommendations to accommodate multi-modal use

C. Transportation Demand

- 1. Design year

2. Volume and composition of demand
 - a. Pedestrian demands
 - b. Bicycle demands
 - c. Motor vehicle traffic demands (existing)
3. Gap analysis – existing capacity vs. current volume
4. Transportation design recommendations

D. Measures of effectiveness

E. Design Speed

1. Target speed
2. Design speed
3. Recommended design elements to reinforce design/target speed without impact to historic parkway character
4. Enforcement issues

F. Sight distance

1. Existing sight distance
 - a. General
 - b. Areas of concern
2. Recommended sight distance (based on speed, alignment, etc.)

8. The Consultant shall meet as necessary with the Department, and shall prepare and submit to the Department a statement, relative to the Consultant's review of existing design plans and roadway assessment plan for **[insert name of parkway]**. The statement shall be based on the Consultant's review and analysis of the existing documentation including drawings, cost estimates, assessments, and collected data. It shall present a corroboration of all information in the design plans and master plan and/or a modification to the information wherever appropriate and necessary in order to make the documents acceptable to the Consultant.
9. The Consultant shall analyze the proposed construction work represented by the roadwork repairs and reconstruction and shall prepare a graphic representation of a time and function schedule. The schedule shall relate to licenses, permits and variances requiring Departmental application to municipal, state and federal agencies during the final design phase. The schedule shall include a detailed outline of time scheduled for all required applications, appeal periods, and sequences of applications. The consultant is required to obtain and furnish to the Department a draft application or blank form for each of the required licenses, permits, variances, and the like.

Deliverables

Six (6) Copies, Draft and Final Survey Plans
 Six (6) Copies, Draft and Final Design Control Report
 Six (6) Copies, Draft and Final Summary Statement and Schedule

D. PROJECT MANAGEMENT

General Contract and Project Management

Under this task, the consultant shall be required to complete the following:

(A) An Initial Plan and Schedule for all Work for review and approval and thereafter, Semi-Monthly Progress Reports and Meeting will be required to summarize the activities that have been conducted during the reporting period and outline work planned for the upcoming period. A project status table shall indicate the budget, person-hours, and percent completion, for all project activities shall accompany Progress Reports and Invoices for payment. At an initial meeting an outline of the final report shall be submitted for review and approval. Progress meetings may be conducted at the Department's Boston Office or on site and are to be a requirement of the Consultant's services.

(B) Interim Reports shall be submitted upon completion of each task's deliverables.

Deliverables

Six (6) Copies, Semi-monthly Progress Reports & Tables

Public Participation Requirements

The consultant shall be responsible for coordinating, attending, and keeping minutes of up to four (4) public meetings as directed by the DCR Project Manager and as indicated in Tasks 1 through 8. The consultant shall prepare materials and handouts and provide any necessary audio-visual equipment for the public meetings. The consultant shall provide an up-to-date listing of project abutters to the DCR Project Manager, at least four weeks prior to the second public meeting. A meeting may precede these meetings with DCR personnel to brief the Commissioner and Deputy Commissioners. In addition, the consultant shall meet with other DCR personnel, including landscape, parkway and maintenance, as directed.

E. DESIGN

The Consultant shall design roadway improvements to accommodate existing uses, meet current safety needs, protect listed plant species and preserve the historic parkway in accordance with standards and guidelines established in the Design Control Report.

Conceptual Design

The consultant shall prepare conceptual plans for parkway treatment in accordance with the recommendations of the [insert name of reservation] Master Plan, RMP, etc., outlining specifications and preliminary cost estimates to meet the objectives of this contract.

Conceptual plans shall take into consideration any potential impacts to historical, natural and wetlands resource features and areas. Plans shall avoid, where practicable, unnecessary or adverse impacts to historical, natural and wetland resource areas. Conceptual plans shall include landscape preservation and renewal as determined in the Design Control Report (Cultural Landscape section).

Following completion of the services of this task, and after acceptance by the DCR, the conceptual plans shall be presented for review and discussion at a public meeting. This meeting shall be scheduled and coordinated in conjunction with the DCR Office of Community Affairs. Public presentation materials shall include graphical presentation plans and perspective drawings in color, as appropriate.

Deliverables

Six (6) Copies, Each Alternative, Conceptual Plan

Six (6) Copies, Preliminary Specifications

Six (6) Copies, Preliminary Cost Estimates

Design Development

The consultant shall develop a preferred design for implementation including plans, outline specifications and a cost estimate.

The consultant, in conjunction with DCR personnel, shall evaluate public response to the conceptual plans as presented. This review period may include other public meetings and presentations. Following the consultative process, the consultant shall proceed to develop the design including plans, outline specifications and revised cost estimates.

Following completion of the services of this task, and after acceptance by the DCR, the preferred alternative design plan shall be presented for review and discussion at a public meeting. This meeting shall be scheduled and coordinated in conjunction with the DCR Office of External Affairs.

Deliverables

- Six (6) Copies, Design Development Plans for each Phase

- Six (6) Copies, Design Development Specifications for Each Phase

- Six (6) Copies, Design Development Cost Estimate for Each Phase

- Public Meeting materials in quantities as needed

Permitting

The Consultant shall be responsible for obtaining all permits, approvals, licenses, variances, and the like, and for the preparation of all applications for permits, licenses, and the like which will be required prior to construction together with any and all required application fees and copies of supplementary materials, plans, and specifications. All documents applications and appeals shall be submitted in draft and final forms. The consultant shall present as many drafts as necessary to prepare a final form acceptable to the DCR. The consultant is responsible for calculation and payment of all fees which are reimbursable expenses.

The consultant shall identify all necessary environmental permits and required filings including, but not limited to, Massachusetts Historical Commission (MHC) review (950 CMR 71.), wetlands protection act filings, water quality permits, and Federal Section 10, 401 and 404 permits. All permit applications for this project shall meet all of the requirements of the Massachusetts Environmental Policy Act (MEPA), Massachusetts Endangered Species Act (MESA), and the Massachusetts Historic Commission.

The consultant shall prepare sufficient copies of all necessary applications, notices and documentation for submission by the DCR. The consultant shall prepare for and attend all necessary meetings and hearings. At the discretion of the DCR project manager, the consultant shall prepare any supplementary information necessary for clarifications or appeals. This task shall be completed and all drafts prepared at the 50% design stage.

The consultant shall be responsible for responding to all issues raised and for incorporating into design documents any procedures or alterations to plans as required by permits.

The consultant shall work with public agencies, boards and commissions as necessary and will attend any required public hearings and meeting in order to obtain the required approvals.

Deliverables

- Draft and Final Environmental Filings, as Required

Preparation of Final Design & Construction Documents

The consultant shall be responsible for preparing all design and construction documents for all phases including necessary plans, elevations, specifications, schedules and cost estimates. Plans shall be presented to the DCR for review and approval at the 20%, 50% and 100% design. Plans shall incorporate all permit and licensing requirements and conditions. 100% Plans shall include horizontal survey controls. Plans shall be prepared in accordance with DCR format with supplements from the MHD Design Guide.

The final estimate shall be prepared in “unit price” format with all estimated quantities. Lump sum prices and allowances should only be included when unit prices are demonstrated to be impractical.

1. Design Report and 20% Plan Submittal

The Consultant shall prepare a 20% Design Submittal of Construction Documents (plans, specifications and cost estimate) conforming to guidelines established under the Design Control Report, as well as the Massachusetts Highway Department format and recommended standards. The Report shall discuss all components to be included in the roadway improvement project. Conclusions, options, and costs shall be presented in this Report. Any Design exceptions (waivers) should be identified at this stage. The plans shall show the locations of all proposed improvements. The Consultant will submit twelve (6) copies of the 20% Plans for Department approval. Comments resulting from the review will be addressed in writing prior to proceeding. When the Department grants the approval of this submittal, the project will proceed to the next design phase.

2. 50% Design Submittal

The Consultant shall prepare 50% Design Submittal of Construction Documents (plans, specifications and cost estimate) conforming to guidelines established under the Design Control Report, as well as the Massachusetts Highway Department format and recommended standards. Six (6) copies of the 50% submittal are required. In addition to all known existing details, the plans shall include, but not be limited to, the following proposed details:

- Road surface
- Roadway width
- Base line
- Edging, curbing and berms
- Drainage appurtenances and channels
- Sub-drains
- Guardrail and Bollards
- Demolition
- Slopes and retaining walls or structures
- Fences
- Pavement markings
- Erosion Control
- Signage
- Resource Protection Barricades

Contract documents shall be in such form that competitive bids can be received from contractors.

3. Obtain 50% Project Approval

The Consultant will submit twelve (6) copies of construction documents (plans, specifications, and cost estimate) for Department approval. Comments resulting from the review will be addressed in writing

prior to proceeding to 100% documents. When the 50% approval is granted, by the Department, the project will proceed to final design plans, specifications and estimate.

4. Final Design (100%)

Construction Plans shall be prepared in accordance with the MHD *Project Development and Design Guide, 2006* and accepted guidelines established in the Design Control Report. The complete set of construction Plans shall include:

- Title Sheet
- Index Sheet
- Key Sheet
- Typical Sections
- Plans and Profile of the roads
- Grading
- Drainage and Special Construction Details
- Erosion Control Plans
- Sign Plans
- Landscape Plans and Details
- Cross-Sections.
- Renderings

All items required in the 100% submission guidelines shall be submitted to the Department for approval.

5. Traffic Management Plan

A traffic management plan shall be developed working with DCR staff, to allow vehicular traffic to flow along the parkway as well as allowing pedestrian and bicycle traffic within the reservation while work is in progress. The consultant shall prepare a Traffic Management Plan & Drawings to be used during each construction phase. Plans must indicate work hours, lane closures, signs, barricades, drums and traffic signals as required.

6. Development of Special Provisions – *Do we need this?????*

The Consultant shall develop special provisions to explain conditions and construction practices not covered in the current edition of the Massachusetts Standard Specifications for Highways and Bridges or Supplemental Specifications to the Standard Specifications. Special provisions may include but not necessarily be limited to the following:

- Scope of Work
- Provisions for Travel and Prosecution of the Work
- Work Schedule
- Special Precautions (Protection of natural and historic resources)
- Individual items not covered in the Standard Specifications
- Copies of Permits, Licenses, Certificates and Order(s) of Conditions
- Scheduling requirements, milestones, completion dates
- Special requirements of the Department of Environmental Management.
- Staging and Mobilization

7. Bid Form

A bid form shall be developed that contains all items of the work based on the standard MHD nomenclature, along with the estimated quantities of each item.

Deliverables

Six (6) Copies, 20%, 50%, 100% Plans, Specifications, Traffic Management Plan, Schedules, Special Provisions, Cost Estimates and Bid Form

F. SERVICES DURING CONSTRUCTION**(A) Assistance with Bidding**

The consultant shall attend any pre-bid conferences, respond (in writing) to inquiries, as directed by the DCR, prepare addenda as required and provide other services as required. Otherwise, the DCR shall be responsible for providing all bidders with plans and specifications, issuing addenda, as well as qualifying bidders in accordance with laws and practices. The consultant shall be required to review bids, prepare a canvas of bids in an electronic format and provide a written analysis of the bidding process and actual bids. The consultant shall include a line expense for printing of construction drawings for distribution by the DCR.

B) Construction Phase Services

The DCR shall provide full-time resident engineer services for construction, which accounts for the majority of construction oversight. The Consultant shall review and approve shop drawings and submittals, prepare change orders, interpretations and alterations as required, attendance at weekly job site meetings, field inspections as needed and consultation and otherwise assist the DCR Resident Engineer during construction. Subtasks are outlined below:

Review of Submittals

Within one week of receipt, the consultant shall check and approve shop drawings, samples, schedules, and other required submittals from the General Contractor after the construction contract has been awarded. The Consultant will provide advice during construction and site visits on a bi-weekly basis to address questions and unanticipated conditions.

Reporting

The Consultant shall report bi-weekly to the Department, in writing, on the following subjects: site visits including job meeting minutes; construction progress with photos; work found to be non-compliant or deficient; project schedule and completion status; shop drawing reviews; and any problems. The consultant shall keep track of all field changes and verify all as-built plans as submitted by the general contractor. The consultant shall prepare all necessary certificates of compliance required for project permits.

Closeout Report

The Consultant shall prepare and submit a final construction closeout report that documents the construction phase. The report shall include, but not be limited to the following: construction progress photos, job site meeting minutes, all consultant project correspondence, and final inspection punch list. It is anticipated that the Department will provide full-time resident representation.

Deliverables

- Attendance at Pre-Bid Conferences
- Addenda and Clarifications as required
- Canvas of Bids
- Evaluation of Bids
- Weekly Job Site Meetings
- Verification of As Built Drawings

- Prepare and submit all Permit Certificates of Compliance
- Review and Approve Submittals, Shop Drawings & Construction Schedules
- Closeout report

G. ADDITIONAL SERVICES

The Consultant agrees to provide additional services not specified in the Scope of Services on an hourly basis as required by the Department to complete unanticipated tasks required for this project. Additional services may include, but are not limited to:

- Additional project meetings or public hearings with interested parties or agencies.
- Modifications to the contract documents subsequent to the submission of the Final Plans, Specifications, and Estimate.
- Additional copies of reports and plans.

Additional Services shall be provided on an hourly basis at the Consultant's and all Sub-consultants' Standard Billing Rates for the year in which the services are provided.

IV. PROJECT SCHEDULE

The Department expects to meet the following schedule and milestones:

Bidders Conference	[insert date]
Proposals Due	[insert date]
Notice to Proceed Issued	[insert date]
Submission of draft Design Control Report	[insert date]
Final Design Control Report	[insert date]
20% Design Submission	[insert date]
Preliminary permit application	[insert date]
50% Design Submission	[insert date]
Final Permit Applications	[insert date]
100% Design Submittal	[insert date]
Begin Construction	[insert date]
Construction Completion	[insert date]

- END OF SCOPE -

Appendix N: Glossary

3R – term generally used by engineers to refer to “resurfacing, restoration, rehabilitation” projects that are usually solely associated with paving projects.

access control – the degree of connection and separation between the roadway and the surrounding land use.

area type – the built and natural environment surrounding a parkway.

average daily traffic (ADT) – the daily average number of vehicles traveling on a particular road.

border road parkway – parkways that historically formed the edges of reservations.

character defining features – those historic aspects of a parkway that establish its unique character.

clear zone – sometimes called a recovery zone, an area free of obstacles beyond a road shoulder.

connecting parkway – parkway that links communities to public parks and reservations, and link parks and reservations to each other.

context sensitive design – collaborative, interdisciplinary approach to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic, and environmental resources, while maintaining safety and mobility for all users.

cross-section – sometimes called the road prism, it is the locations, dimensions, and materials of a road and its adjacent environment.

cultural landscape assessment – that part of the design control report that documents history and historic role and significance, existing conditions and character defining features.

cyclic maintenance – scheduled routine parkway maintenance on an established timeline.

design control report – report outlining the parkway-specific design controls.

design controls – the acceptable parameters for speed, congestion, curvature, peak hour service, and other design elements on a parkway project.

design hour volume – one-hour volume in the design year selected for determining the highway design.

design speed – selected speed used to determine the various design features of the roadway.

estate road parkway – parkway originally designed to serve private grounds, and have been adapted for use in estates-turned-parks.

functional classification – classification of roadway types based on the degree of access and mobility provided.

geographic information system (GIS) - a collection of computer hardware, software, and geographic data for capturing, managing, analyzing, and displaying all forms of geographically referenced information.

historic integrity – the physical evidence of the history of a historic entity and the entity’s ability to convey that significance; defined by the NPS as the culmination of location, setting, design, materials, workmanship, feeling, and association.

horizontal alignment – sometimes called the plan, the curves and straight tangents of a parkway.

intelligent transportation system (ITS) – wireless and wire line communications-based information and electronics technologies which relieve congestion, improve safety and enhance productivity.

internal park road – the primary circulation system within parks, providing access to recreational sites; alignments generally follow the natural topography and are often more curvilinear, with greater changes in vertical alignment than other parkways.

level of service (LOS) – measure of user satisfaction with degrees of movement through a transportation network.

metropolitan planning organization (MPO) – federally mandated transportation decision-making organization charged with allocating federal funding to transportation projects.

natural resources inventory – identification of natural resources directly associated with a parkway corridor.

ocean parkway – located exclusively along the ocean and follow the horizontal alignment of the shoreline.

period of significance – years during which a site achieved the local, state, or national significance as required by the National Register of Historic Places.

plan – road engineering term referring to the layout of a road including its location and alignment.

profile – road engineering term referring to the vertical layout of a road.

project manager – leads an internal planning process to determine a scope of work, schedule, budget, and roles and responsibilities of team members.

project review committee (PRC) – convenes to formally review parkway projects and gives full consideration to the project's viability and design details.

reconstruction – the act or process of depicting, by means of new construction, the form, features, and detailing of a non-surviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location.

rehabilitation – the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values.

restoration – the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period.

river parkway – parkway that follows one side of a watercourse in a generally level, curvilinear alignment that parallels the shoreline.

roadway type – the role the parkway roadway plays in providing regional connections and local access.

shoulder – portion of a roadway adjacent to a traveled way for accommodation of stopped vehicles, for emergency use, and for lateral support of the base and surface courses.

sight distance – line of sight available to the driver to see another roadway user or a fixed object.

summit road parkway – parkway that winds up steep mountain slopes in a series of ascents, with rests at pullouts at overlooks; provides an experience of rugged progress up steep, winding topography, with dramatic views on the way to the summit.

superelevation – also known as banking, the tilt of a road surface to counteract centripetal forces.

target speed – the desirable vehicular operating speed along a roadway for a particular context.

technical evaluation criteria (TEC) – criteria, as specified in the request for proposal, for scoring for ranking proposals based on technical merits

tort liability – when an injury is sustained due to negligence on behalf of a managing agency or design professional and the responsibility of the managing agency to make restitution for damages.

traffic volume – number of vehicles or persons that pass over a given section of a lane, roadway, or other traffic way during a time period of one hour or more; can be expressed in terms of daily traffic or annual traffic, as well as on an hourly basis.

transportation demand – demand by motorists, pedestrians, and bicyclists for a facility, assessed in terms of volume, composition, and patterns.

transportation improvement program (TIP) – five year funding program that allocates state and federal transportation funds, both highway and transit, for the region; prepared by MPOs every year.

vernacular road parkway – parkway found in virtually all forests, parks and reservations in the Commonwealth; typically simple in construction and located in undeveloped areas.

vertical alignment – sometimes called a profile, the up and down movement of a road.

Appendix O: Bibliography

I. Available in Print (Web availability is noted)

MassHighway. 2006. *Project Development and Design Guide*. Boston, MA: MassHighway.
http://www.vhb.com/mhdGuide/mhd_GuideBook.asp
An essential companion to this manual.

U.S. Department of Transportation, Federal Highway Administration. 1997. *Flexibility in Highway Design*. Washington, D.C.: U.S. Department of Transportation, Federal Highway Administration.

An essential reference and in many respects the model of this manual.

General

American Association of State Highway & Transportation Officials. 1994. *A Guide for Achieving Flexibility in Highway Design*. Washington, DC: American Association of State Highway & Transportation Officials.

_____. 2004. *A Policy on Geometric Design of Highways and Streets*. Washington, DC: American Association of State Highway & Transportation Officials.
The AASHTO Green Book

Birnbaum, Charles A. 1994. *Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes, Preservation Brief 36*. Washington, DC: U. S. Department of Interior, National Park Service.

<http://www.cr.nps.gov/hps/tps/briefs/brief36.htm>

Good basic guideline for the process of planning for the treatment of historic landscapes. Provides definitions of various historic landscape types and treatments, and a step-by-step process

_____. 1996. *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*. Washington, DC: U. S. Department of Interior, National Park Service, Cultural Resource Stewardship and Partnerships, Heritage Preservation Services, Historic Landscape Initiative.

Gives the fullest guidance on treatment of historic landscapes

Davis, Timothy. 2006. *Historic Roads, Landscape Lines 16*. Washington, DC: U. S. Department of Interior, National Park Service.

<http://bookstore.gpo.gov>

Provides guidance in the identification, inventory, evaluation and treatment for historic roads within National Park System, in particular the preparation of a Cultural Landscape Report (CLR). Highly analogous to the process and guidelines contained in this manual.

Goetteus, Cari, and Margie Coffin Brown, National Park Service. 2002. *Historic Roads and Trails in the National Park Service: A Cultural Landscape Perspective*.

A paper presented at the Preserving Historic Roads conference in Omaha, Nebraska, April 2002.

Marriott, Paul Daniel. 1998. *Saving Historic Roads*. New York: John Wiley & Sons, Inc. Provides a good examination of the complex issues surrounding historic roads, and provides design and policy guidelines for adapting contemporary transportation laws and engineering practices to these resources.

_____. 2004. *From Milestones to Mile-Markers, Understanding Historic Roads*. Duluth, MN: Historic Preservation for America's Byways Resource Center.

Massachusetts Department of Environmental Management, Division of Resource Conservation. 2002. *Preservation Guidelines for Municipally Owned Historic Burial Grounds and Cemeteries*. Second edition. Boston, MA: Department of Environmental Management, Division of Resource Conservation.

Newton, Norman T. 1971. *Design on the Land, the Development of Landscape Architecture*. Cambridge, MA: Harvard University Press.

Good general history of parkways included in this far-ranging survey by a practicing landscape architect.

U. S. Department of Interior, National Park Service. 1998. *A Guide to Cultural Landscape Reports: Contents, Process and Techniques*. Washington, DC: U. S. Department of Interior, National Park Service.

Describes the content and format for a cultural landscape report (CLR), which is the primary tool for long-term management of a cultural landscape. The section entitled Documenting the History describes the work that results in a CLR. A CLR is often prepared when a change is proposed, which is particularly important for historic parkways that can be threatened by "improvements". Documents tasks from research through development of a treatment plan and maintenance guide.

Access

Transportation Research Board, National Academy of Sciences. 2003. *Access Management Manual*. Washington, DC: Transportation Research Board, National Academy of Sciences.
<http://www.accessmanagement.gov/manual.html>

ADA Accessibility

Federal Highway Administration. 2001. *Best Practices Design Guide: Designing Sidewalks and Trails for Access*. Washington, DC: Federal Highway Administration.
<http://www.fhwa.dot.gov/environment/sidewalk2/>

Barriers

Vermont Agency of Transportation. 2000. *Study of Guardrail Selection Criteria for Vermont Highways*. Montpelier, VT: Vermont Agency of Transportation.
<http://www.aot.state.vt.us/planning/Documents/Guardrail.pdf>

Bicycle Users

American Association of State Highway & Transportation Officials. 1999. *Guide for the Development of Bicycle Facilities*. Third Edition. Washington, DC: American Association of State Highway & Transportation Officials.

MassHighway. 1994. *Building Better Bicycling*. Boston, MA: MassHighway.

MassHighway. 1998. *Massachusetts Statewide Bicycle Transportation Plan*. Boston, MA: MassHighway.

Pedestrian Users

Transportation Research Board, National Academy of Sciences. 2000. *Highway Capacity Manual*. Washington, DC: Transportation Research Board, National Academy of Sciences.

Signage

Federal Highway Administration. 2004. *Manual on Uniform Traffic Control Devices*. Washington, DC: Federal Highway Administration.
<http://mutcd.fhwa.dot.gov/pdfs/2003r1/pdf-index.htm>

Walls

Gage, Mary and James Gage. 2005. *The Art of Splitting Stone: Early Rock Quarrying Methods in Pre-Industrial New England 1630-1825*. Second Edition. Amesbury, MA: Powwow River Books.

Mack, Robert C., FAIA and John P. Speweik. 1980. *Repointing Mortar Joints in Historic Masonry Buildings*. Preservation Brief No.2. Washington, DC: U. S. Department of Interior, National Park Service.
<http://www.cr.nps.gov/hps/TPS/briefs/brief02.htm>, updated 1998

Thorson, Robert M. 2002. *Stone by Stone, the Magnificent History in New England's Stone Walls*. New York City: Walker Publishing Company.

Vermont Agency of Natural Resources, Department of Forest Parks and Recreation. N.d. *Stone Walls and Cellar Holes, A Guide for Landowners on Historic Features and Landscapes in Vermont's Forests*. Montpelier, VT: Vermont Agency of Natural Resources, Department of Forest Parks and Recreation.

II. Available on Web only

General

<http://hci.thetrustees.org/documents.cfm?documentID=354>

The Path to Protecting Country Roads (Alexandra Dawson, Esq., January 2004)

<http://www.byways.org>, <http://www.bywaysonline.org/>

National Scenic Byways Program, includes information on state scenic byways program and corridor management plans

<http://www.clf.org/general/index.asp?id=386>

Take Back Your Streets: How to Protect Communities From Asphalt and Traffic

<http://commpres.env.state.ma.us/index.asp>

Community Preservation Initiative – Massachusetts Executive Office of Environmental Affairs

http://www.ecs.umass.edu/baystate_roads/index.htm

Bay State Roads - Massachusetts Local Technical Assistance Program

<http://www.environment.fhwa.dot.gov/histpres/index.asp>

Federal Highway Administration – Historic Preservation and Archeology Program

<http://www.historicroads.org>

“Dedicated to the identification, preservation and management of historic roads”

<http://www.mass.gov/dcr/stewardship/histland/histland.htm>

Historic Landscape Preservation Initiative

http://www.nationaltrust.org/issues/transportation/design_guidelines.html

National Trust for Historic Preservation – Transportation Issues and Initiatives

<http://www.sec.state.ma.us/mhc/mhcpdf/difference.pdf>

There's a Difference! (Massachusetts Historical Commission) defines the difference between national and state registers of Historic Places

Design and Design Alternatives

<http://www.contextsensitivesolutions.org>

“the Transportation community’s Online Resource Center for Context Sensitive Solutions” includes case studies, national and international, searchable by road cross section element, and traffic calming

<http://www.fhwa.dot.gov/csd/>

Federal Highway Administration – Context Sensitive Solutions

<http://www.frcog.org/planpub.html>

Franklin Regional Council of Governments - Design Alternatives for Rural Roads
Includes information on low speed/low volume design

<http://tfhrc.gov/>

Federal Highway Administration – Turner-Fairbank Highway Research Center

<http://www.trafficcalming.org>

Good survey of traffic calming techniques

<http://www.ite.org/traffic/tcstate.htm#tcsop>

Good survey and toolbox of traffic calming techniques by Institution of Transportation Engineers (ITE)

Laws and Regulations

<http://commpres.env.state.ma.us/content/ptbo.asp>

Preservation Through Bylaws and Ordinances (updated through 2003)
Overview of legal issues (including roads) related to historic preservation in Massachusetts

<http://www.mass.gov/czm/envpermitmaprotectionact.htm>

Wetlands Protection Act – overview

<http://www.mass.gov/envir/mepa/>

Massachusetts Environmental Policy Act Office

<http://www.state.ma.us/legis/laws/mgl/40-15c.htm>

Scenic Road Bylaws – full legal text

<http://www.mass.gov/legis/laws/mgl/gl-44b-toc.htm>

Community Preservation Act – full legal text

<http://www.mass.gov/legis/laws/mgl/131-40.htm>

Wetlands Protection Act – full legal text

ROAD NAME	PARKWAY	GIS Coverage Notes	DCR (MDC) Ownership y=yes date if available and source	Listed in Multi-Property OR Charles River Basin OR Olmsted OR Chestnut Hill (C)=Contributing	Period of Significance	Nomination Status	Primary Parkway Type: Connecting (C) Internal (I) Border (B) Source: DCR	Secondary Parkway Type: River (R) Ocean (O) Summit (S) Estate (E) Vernacular (V) Source: DCR	Pleasure (P) vs. General Traffic (G) Not Listed (?) Source: Pleasure and General Traffic Roads of the Metropolitan District Commission
Alewife Brook Parkway	Alewife Brook Parkway		1909 nr	C	1908-1928	LISTED 3/18/04	C	—	PG
Blue Hills Parkway	Blue Hills Parkway			C	1893-1939	LISTED 6/23/03	C	—	G
Blue Hill River Road	Blue Hills Reservation Parkways			C	1893-1939	LISTED 6/23/03	I	—	G
Chickatawbut Road	Blue Hills Reservation Parkways			C	1893-1939	LISTED 6/23/03	I	—	G
Green Street	Blue Hills Reservation Parkways			C	1893-1939	LISTED 6/23/03	B	—	G
Hillside Street	Blue Hills Reservation Parkways			C	1893-1939	LISTED 6/23/03	I	—	P
Unquity Road	Blue Hills Reservation Parkways			C	1893-1939	LISTED 6/23/03	I	—	P
Wampatuck Road	Blue Hills Reservation Parkways			C	1893-1939	LISTED 6/23/03	I	—	P
Elm Road	Breakheart Reservation Parkways	Not in GIS coverage		C	1935-1938	LISTED 8/11/03	I	—	?
Forest Street	Breakheart Reservation Parkways			C	1935-1938	LISTED 8/11/03	C	—	?
Hemlock Road	Breakheart Reservation Parkways			C	1935-1938	LISTED 8/11/03	I	—	?
Pine Tops Road	Breakheart Reservation Parkways	Not in GIS coverage		C	1935-1938	LISTED 8/11/03	I	—	PG
Cambridge Parkway (Listed as part of Charles River Basin NR District)	Cambridge Parkway			C	1893-1910	LISTED 1/22/78	C	R	P
Arsenal Road	Charles River Reservation Parkways			C	1895-1956	LISTED 1/18/2006	C	R	? ARSENAL STREET?
Charles River Road	Charles River Reservation Parkways			C	1895-1956	LISTED 1/18/2006	C	R	G
Greenough Boulevard	Charles River Reservation Parkways			C	1895-1956	LISTED 1/18/2006	C	R	P
Leo Birmingham Parkway	Charles River Reservation Parkways			C	1895-1956	LISTED 1/18/2006	C	R	?
Nonantum Road	Charles River Reservation Parkways			C	1895-1956	LISTED 1/18/2006	C	R	P
North Beacon Street	Charles River Reservation Parkways			C	1895-1956	LISTED 1/18/2006	C	R	PG
Norumbega Road	Charles River Reservation Parkways			C	1895-1956	LISTED 1/18/2006	C	R	P
Quinobequin Road	Charles River Reservation Parkways			C	1895-1956	LISTED 1/18/2006	C	R	P
Recreation Road	Charles River Reservation Parkways			C	1895-1956	LISTED 1/18/2006	C	R	G
Soldiers Field Road	Charles River Reservation Parkways			C	1895-1956	LISTED 1/18/2006	C	R	P
Chestnut Hill Drive	Chestnut Hill Drive			C	1845-1926	Listed on NR as part of Chestnut Hill District (NR nomination on file) Note: Road described but not listed as a feature.	C	R	P
Arborway	Emerald Necklace Parkways		1956 nr	C	?	early form, POS not identified	C	—	
Fenway	Emerald Necklace Parkways		1956 nr	C	?	Listed on NR as part of Olmsted Parks System, early form, POS not identified	C	—	P
Jamaicaway	Emerald Necklace Parkways		1956 nr	C	?	early form, POS not identified	C	—	PG
Park Drive	Emerald Necklace Parkways		1956 nr	C	?	early form, POS not identified	C	—	P
Riverway	Emerald Necklace Parkways		7	C	?	early form, POS not identified	C	—	P
Boundary Road	Fellsmere Park Parkways			C	1913-1956	LISTED	B	—	P
West Border Road	Fellsmere Park Parkways			C	1913-1956	LISTED 5/9/03	B	—	P
East Border Road	Fellsway Connector Parkways			C	1895-1956	LISTED 5/9/03	C	—	G
Fellsway East	Fellsway Connector Parkways			C	1895-1956	LISTED 5/9/03	C	—	P
Fellsway West	Fellsway Connector Parkways			C	1895-1956	LISTED 5/9/03	C	—	PG
The Fellsway	Fellsway Connector Parkways			C	1895-1956	LISTED 5/9/03	C	—	P
Fresh Pond Parkway	Fresh Pond Parkway			C	1998-1956	LISTED 1/5/05	C	—	PG

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Furnace Brook Parkway	Furnace Brook Parkway			C	1893-1956	LISTED 3/18/04	C	—	PG
Gallivan Boulevard	Gallivan Boulevard		1956 nr		?	No NR nomination on file	C	—	P
Hammond Pond Parkway	Hammond Pond Parkway			C	1913-1956	LISTED 3/18/04	C	—	G
Lynn Fells Parkway	Lynn Fells Parkway			C	1906-1956	LISTED 5/9/03	C	—	P
Lynn Shore Drive	Lynn Shore Drive				?	No NR nomination on file	C	—	P
Memorial Drive (Listed as part of Charles River Basin NR District)	Memorial Drive			C	1893-1910	LISTED, 1/22/78	C	R	P
East Border Road	Middlesex Fells Reservation Parkways			C	1894-1956	LISTED 2/4/03	B	—	P
Elm Street	Middlesex Fells Reservation Parkways			C	1894-1956	LISTED 2/4/03	I	—	P
Fellsway East	Middlesex Fells Reservation Parkways			C	1894-1956	LISTED 2/4/03	B	—	P
Fellsway West	Middlesex Fells Reservation Parkways			C	1894-1956	LISTED 2/4/03	B	—	P
Hillcrest Parkway	Middlesex Fells Reservation Parkways			C	1894-1956	LISTED 2/4/03		—	G
Pond Street	Middlesex Fells Reservation Parkways			C	1894-1956	LISTED 2/4/03	I	—	G
Ravine Road	Middlesex Fells Reservation Parkways			C	1894-1956	LISTED 2/4/03	I	—	G
South Border Road	Middlesex Fells Reservation Parkways			C	1894-1956	LISTED 2/4/03	B	—	P
South Street	Middlesex Fells Reservation Parkways			C	1894-1956	LISTED 2/4/03		—	G
Woodland Road	Middlesex Fells Reservation Parkways			C	1894-1956	LISTED 2/4/03	I	—	P
Morton Street	Morton Street		1956 nr	C	1930-1956	LISTED 1/24/05	B OR C	—	PG
Mystic Valley Parkway	Mystic Valley Parkway			C	1895-1936	LISTED 1/18/2006	C	R	G
Nahant Beach Boulevard	Nahant Beach Boulevard	Not in GIS coverage	C&C 1915	C	1905-1956	LISTED 8/11/03	C	O	PG
Hull Shore Drive	Nantasket Beach Reservation Parkways			C	1893-1956	LISTED 1/21/04	C	O	?
Nantasket Avenue	Nantasket Beach Reservation Parkways			C	1893-1956	LISTED 1/21/04	C	—	?
Neponset Valley Parkway	Neponset Valley Parkway			C	1898-1929	LISTED 1/24/05	C	—	?
Columbia Boulevard	Old Harbor Reservation Parkways	There is a Columbia Road in GIS coverage. SAME?	1954 nr		?	No NR nomination on file	C	O	G
Day Boulevard	Old Harbor Reservation Parkways		1949 nr		?	No NR nomination on file	C	O	?
Gardner Way	Old Harbor Reservation Parkways		1954 nr		?	No NR nomination on file	C	O	G
Old Colony Parkway (Morrissey Blvd)	Old Harbor Reservation Parkways		1954 nr		?	No NR nomination on file	C	O	PG
Quincy Shore Drive	Quincy Shore Drive			C	1903-1931	LISTED 6/23/03	B	O	P
Revere Beach Boulevard	Revere Beach Boulevard				1895-1906	Draft NR nomination on file	C	O	?
Revere Beach Parkway	Revere Beach Parkway				1899-1953	Draft NR nomination on file	C	O	P
Bellevue Hill Road	Stony Brook Reservation Parkways			C	1894-1956	LISTED 1/3/2006	B	—	PG
Dedham Parkway	Stony Brook Reservation Parkways			C	1894-1956	LISTED 1/3/2006	I OR B	—	P
Enneking Parkway	Stony Brook Reservation Parkways			C	1894-1956	LISTED 1/3/2006	I	—	?
Reservation Road	Stony Brook Reservation Parkways			NOT LISTED	1894-1956	LISTED 1/3/2006		—	P
Smith Field Road	Stony Brook Reservation Parkways			NOT LISTED	1894-1956	LISTED 1/3/2006		—	?
Turtle Pond Parkway	Stony Brook Reservation Parkways			C	1894-1956	LISTED 1/3/2006	I	—	P
West Border Road	Stony Brook Reservation Parkways	Not in GIS coverage		C	1894-1956	LISTED 1/3/2006	B	—	?
Storrow Drive (Listed as part of Charles River Basin NR District)	Storrow Drive			C	1893-1910	LISTED, 1/22/78	C	R	P
Truman Parkway	Truman Parkway			C	1831-1956	LISTED 1/5/05	C	—	?
VFW Parkway	VFW Parkway			C	1931-1956	LISTED 1/5/05	C	—	PG

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West Roxbury Parkway	West Roxbury Parkway			C	1894-1956	Listed 1/19/06	C	-	P
Winthrop Parkway	Winthrop Parkway			C	1893-1956	LISTED 1/21/04	C	O	P
Winthrop Shore Drive	Winthrop Shore Drive			C	1899-1956	LISTED 1/18/2006	C	O	P